

RAILWAY

March 1955

# TRACK *and* STRUCTURES

One of Five Specialized Railway Age Publications

EQUIPMENT  
ECONOMIES  
MEMBER

This Issue . . .

AREA Program  
March Meeting

Symposium on  
Track Maintenance

Machines Make  
Working Easier

Undercuts Track  
Tunnels

Automation for  
Track-Renewal Gang

Contents—  
Page 55

FORMERLY

Engineering and  
Maintenance

The Sunset Limited, one of America's most modern passenger trains, operates between New Orleans and Los Angeles and traverses the legendary Evangeline Country of South Louisiana, the bustling industrial centers of the Gulf Coast region, and the scenic Southwest, land of dude ranches and painted deserts.

THE P. & M. CO.

CHICAGO • NEW YORK • DENVER • ST. LOUIS • BOSTON • FT. WORTH • WASHINGTON • SAN FRANCISCO • PHOENIX

**CATERPILLAR ANNOUNCES  
THE**

# **NEW D7 SERIES C**

**MORE POWER,  
SMOOTHER  
PERFORMANCE**



**NOW 102 DRAWBAR HP! NOW A VIBRATION BALANCER ON THE ENGINE!**

*Here's the new CAT\* Diesel D7 Tractor... latest example of Caterpillar Leadership in Action!*

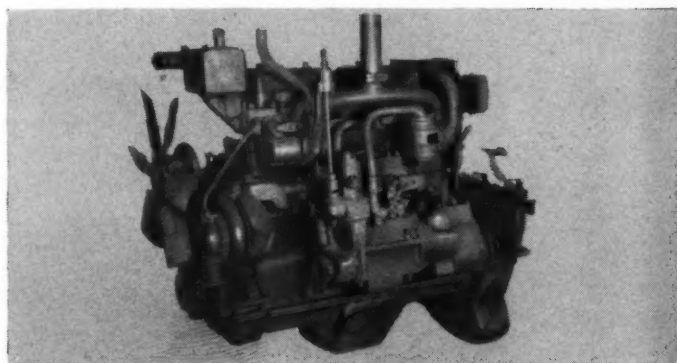
**Drawbar HP increased** to 102, engine HP to 123 (at 1200 r.p.m.).

**Vibration balancer** on the 4-cylinder engine now gives all the smoothness of 6-cylinder performance.

**Drawbar pull** now 28,700 pounds maximum.

**New starting engine** has more power for surer, faster starts in all weather, and simple single-lever control for easier operation.

**New "water quench" process** for hardening track shoes almost doubles shoe life.



**New 128-HP engine** features improved fuel injection system, flanged center main bearing to take crankshaft thrust, many other advances.

The new D7 Series C is ready now to give you more profitable production than ever before. Call your Caterpillar Dealer today for a demonstration!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS, U.S.A.

I would like additional information on the new D7 Series C

Name \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# **CATERPILLAR\***

\*Both Cat and Caterpillar are registered trademarks—®

**THE NEW D7...MORE  
POWER, SMOOTHER  
PERFORMANCE**





## Here's the stand that will bear the traffic

Set this stand at a high-speed turnout, yard throat, or other heavy-duty point and it will give you many years of trouble-free operation. For this is Bethlehem's Model 53 switch stand, designed from the top down to weather rugged service on both main line and yard locations.

Model 53 uses the sliding-block principle to develop tremendous leverage when it is needed most. All moving parts (and there are only three) are extra-heavy steel

forgings, heat-treated for additional hardness. The screw-eye crank is forged from heat-treated alloy steel, and has rounded thread roots to protect the shank from incipient cracks. The base is cast of malleable iron, and is unusually large to give ample stability to the stand. Holes are specially spaced to prevent early spike-killing of the ties.

Over the years, thousands of Model 53 stands have gone into service. Some are real veterans by

now, and still going strong. The only attention this workhorse needs is a spot of oil now and again. We'll be glad to arrange a demonstration at a point near you. Just call or write our nearest office.

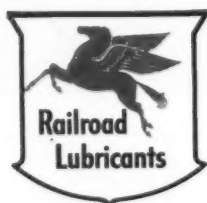
**BETHLEHEM STEEL COMPANY**  
BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation*



# PROGRESS REPORT ON S/V AGRONYL R

**Socony-Vacuum's economical,  
versatile weed controller!**



## Socony-Vacuum Oil Co., Inc. RAILROAD DIVISION

26 Broadway, New York 4, N. Y.  
59 East Van Buren Street, Chicago 5, Ill.

**S/V Agronyl R** — Socony-Vacuum's weed controller developed in cooperation with leading railroads — now has been thoroughly tested in the field.

Last year it was used by 14 railroads on rights-of-way as far apart as the Gulf of Mexico and the Canadian border. Thus, users had an opportunity to observe *S/V Agronyl R* under practically every kind of climate condition and on all typical roadbed vegetation in this wide area.

The results are now available in our Technical Service Laboratory Report No. 54-14-S . . . "Progress report on the use of *S/V Agronyl R* for weed control on railroad rights-of-way." This is the most complete summary of data ever compiled on the correct application of herbicidal oil to assure effective weed control.

Copies of Report No. 54-14-S are available to all railroad chief engineers and their staffs. Personal consultations regarding results covered by the report, and their application to your problems, will be arranged without obligation. Simply write us, or call your Socony-Vacuum representative.

### TYPICAL RESULTS OBTAINED WITH S/V AGRONYL R



Four-week hold-down,  
Alabama



Seven-week hold-down,  
Central Illinois



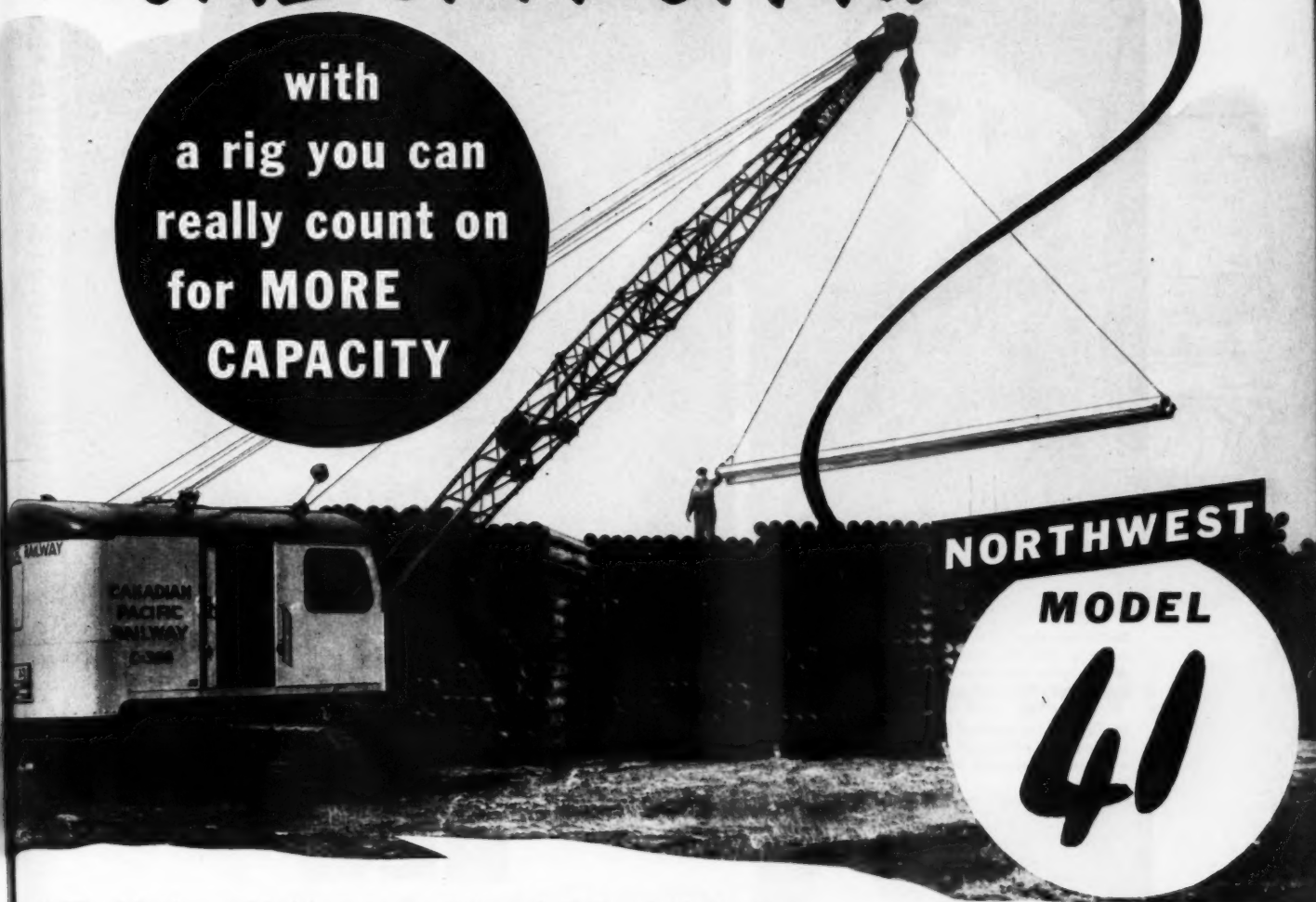
Nine-week hold-down,  
So. Minnesota



Ten-week hold-down,  
Oklahoma

# MORE CAPACITY..

with  
a rig you can  
really count on  
for **MORE**  
**CAPACITY**



**NORTHWEST**  
**MODEL**

**41**

● The Northwest Model 41 is an all 'round Railroad Man's rig. The 41 is a *full* 1 yd. machine, built as a 1 yd. machine from the ground up and capable of the output you expect of a 1 yd. machine. Positive Traction on both crawlers while turning as well as when going straight ahead takes it where other machines have difficulty. It crosses rail with ease, loads and unloads itself under its own power on one standard flatcar without dismantling, travels over cars or through drop-end gondolas. Easy convertibility to Shovel, Dragline or Pullshovel, gives you the versatility that provides a quick solution to such problems as building shoulders, off-line drainage, ditching, loading fill, trimming banks, storeyard work and loading materials of all kinds.

If you want real 1 yd. capacity here's the rig you need. Don't buy a Crane, Shovel or Dragline without finding out about this proved 1 yd. machine.

**NORTHWEST ENGINEERING COMPANY**  
1513 Field Bldg., 135 South LaSalle Street, Chicago 3, Illinois

**Model 41 Shovel loading out bank run for fill.**



# NORTHWEST

**THE ALL PURPOSE RAILROAD MACHINE  
CRAWLER OR RUBBER MOUNTED SHOVELS  
CRANES • DRAGLINES • PULLSHOVELS**



**DOES  
THINGS  
NO TRACK-TYPE  
RIG CAN DO**





Bucks logs right on the ground. Fast. Quick. Clean. Jaw-grip spike bites into dirt . . . keeps chain up out of dirt. Spike takes thrust of chain . . . prevents logs from rolling or spinning away.

Plunge-bucking speeds clearing operations. Gets into all kinds of hard-to-reach places. Enables operator to work quickly, but safely, in close quarters and on steep slopes.



Here is a completely new Homelite development that makes a Homelite One Man Chain Saw an even greater time-and-money-saver. Converts the Model 17 Chain Saw into an *all-purpose clearing tool* . . . quickly, easily.

With this highly maneuverable new attachment . . . driven by the 3.5 h.p. engine of the 22 pound Homelite Model 17 . . . one man can do the work of



## NEW CLEARING ATTACHMENT FOR HOMELITE CHAIN SAWS

a whole gang of men using saws and axes. He can fell, buck, and limb all small trees and saplings without bending, stooping or chain binding.

On demonstration after demonstration, men who have used this clearing tool agree that here is positively the best thing yet.

Write for a free demonstration.

Manufacturers of Homelite  
Carryable Pumps • Generators  
Blowers • Chain Saws

PERFORMANCE • DEPENDABILITY  
**HOMELITE**  
CORPORATION  
SERVICE

203 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa.

Line construction bodies for light to heavy-duty. Crew compartments optional. Efficient tool compartments and drawers.

Bodies for truck driven air compressors. Designed to accommodate hose reels, tapping machines, jack hammers, etc.

Service bodies for chassis up to 1 1/2 ton. Lengths, 73", 84", 90" and 102".

Tree trimmer body accommodates 7-men crew. Aerial and winch equipment optional. Side rack hinges for easy unloading of brush.

Light-duty power operated derricks for front or rear mounting. Operating range of 146°.

Holan 3700 Heavy-Duty Live-Boom Power Derrick is illustrated with stiff-leg integral removing pole from ground. Rated safe-load capacity of 12,000 pounds exceeds all previous derricks of its type; loads body under power with maximum 3,000 pounds. For big lifts, Holan Self-stowing Hydraulic Jacks are recommended.



## GREATEST "LIFT" MONEY CAN BUY!

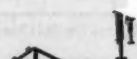
Ladders to 40' with all phases completely hydraulic. Pump actuated by P.T.O. or separate engine drive with electric starter.

Mechanical ladders expertly engineered and counterbalanced for effortless handling. Maximum heights from 23' to 40'. Swings 360°; angles to 72°.

Portable mechanical and hydraulic earth borers with optional rotation.

Wide variety of pole and reel trailers. Standard and special. Many optional features.

Hydraulic jacks, controlled from rear of truck. Rigid mounted or patented Holan self-stowing types.



Holan-engineered to hoist loads never before achieved by a live boom power derrick, this mighty hydraulic weight-lifter handles burdens up to 6 tons! Powerful double-acting cylinders offer plenty of brawn to tote 70-foot poles and "H" frames.

A working range of 195°, from over-the-cab storage to a five-foot head height for easy winch line threading, combines versatility with strength. Power body-loading capacity of 5000 pounds is also an important feature. Super-sensitive throttle controls at rear of truck put you in complete command of speed and position of the derrick at all times... easy as handling a toy train! Protection of crew and equipment is assured by numerous safety-engineered features.

If pole setting and other weighty jobs are over-taxing your crew and equipment, you'll want to see this heavyweight in action building efficiency and morale, and reducing costs. Yes, a Holan Series 3700 Heavy-Duty Power Derrick will soon earn its own way on your team. Write for more details.

"You"-tility Engineered by **J. H. HOLAN CORPORATION**

4100 WEST 150 ST.

CLEVELAND 11, OHIO

THE NAME THAT MEANS WORK SIMPLIFICATION

# Quick-Change Convertibility

## HELPS YOU HANDLE ALL THESE JOBS-- AND MORE

Building and Repairing Bridges •  
Trimming and Widening Banks • Handling  
Rails • Loading Ballast • Ditching •  
Building Up Fills • Roadbed Construction  
and Maintenance • Cleaning Up Landslides



Construction and maintenance crews like Bucyrus-Erie machines because quick convertibility from one front end to another makes them versatile enough to handle almost any type of job. In addition, Individual Design of every model in the line matches front ends to each machine's rated capacity to insure efficient performance.

Here's an example of easy convertibility: on the ¾-yard 22-B shown here you can convert from drag-line to shovel simply by adding the crown chain unit and reversing one brake. On any Bucyrus-Erie model, no major main machinery changes are required. You get even more flexibility, too. For example, butt-splices provide for easy insertion and interchangeability of crane boom insert sections; jib extensions can be added without dismantling boom point machinery.

This kind of versatility pays off in work done fast on railroad assignments. See your Bucyrus-Erie distributor soon and get the full story of how Bucyrus-Eries can save you time and money on a wide variety of jobs.

39E54

Available Front Ends on Different  
BUCYRUS-ERIE Models

MODEL	CAPACITY	SHOVEL	DRAG- LINE	DRAG- SHOVEL	CRANE	CLAM- SHELL
10-B	¾-yd.	yes	yes	yes	yes	yes
15-B*	¾-yd.	yes	yes	yes	yes	yes
22-B*	¾-yd.	yes	yes	yes	yes	yes
30-B	1 ½-yd.	yes	yes	yes	yes	yes
51-B	2-yd.	yes	yes	yes	yes	yes
54-B	2 ½-yd.	yes	yes	yes	yes	yes
71-B	3-yd.	yes	yes	no	yes	yes
88-B	4-yd.	yes	yes	no	yes	yes

\* Available with crawler mounting or with Transit Crane (carrier) mounting.

**BUCYRUS  
ERIE**

*South Milwaukee, Wisconsin*



# Now! a **PACKAGED** AIR SUPPLY for ANY Jordan Unit--*New or Old!*



**Supplies correct  
air pressure  
and volume for  
PROPER  
OPERATION**

*Complete...  
Ready To Install*

PACKAGE  
INCLUDES:

**COMPRESSOR,  
ENGINE, FITTINGS,  
HOSE and VALVES**  
*Plus Detailed Installation  
Data for YOUR Specific Unit*

The new Jordan Packaged Air Compressor Unit, by providing a dependable, independent air supply, insures maximum operating efficiency of Jordan Spreaders, Ditchers and Snowplows. In addition, you gain greater flexibility, because any motive power can be used with Jordan equipment, regardless of its air-producing capacity.

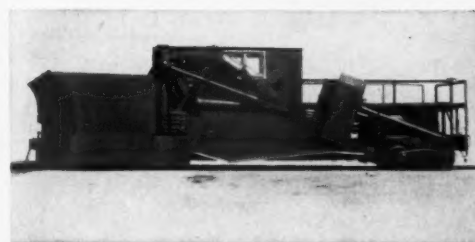
We supply everything necessary for the installation, including detailed instructions and drawings for your specific equipment. Your Mechanical Department can make the installation with minimum delay and labor cost.

*Write for complete information today*



**old**

Regardless of the age of your Jordan, the new Packaged Air Supply Unit can be installed quickly and easily.



**new**

Insure maximum performance and utility from newer Jordan Units.

**O. F. JORDAN COMPANY**

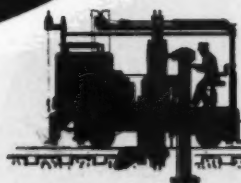
WALTER A. JORDAN, CHAIRMAN OF THE BOARD  
EAST CHICAGO, INDIANA

**MECHANIZED  
TRACK MAINTENANCE**  
*at its finest!*



R.M.C. TIEMASTER replaces ties at  $\frac{1}{4}$  the cost of other methods, with minimum disturbance to the bed.

*Investigate*  
**THE EXTRAORDINARY  
SAVINGS**  
of this Maintenance  
Combination



1. R.M.C. TieMaster removing old ties and inserting new ones at a rate of one per minute.



2. R.M.C. SpikeMaster nipping up the ties and driving four spikes.

Each of the machines shown here is recognized as the most efficient and economical means of doing its job. When used in combinations of two or more machines, R.M.C. Equipment provides even greater savings in track maintenance costs.

See the R. M. C. Machines at the N.R.A.A. Exhibit • Booths Number 95, 96, 96-A, 115, 116, 116-A.



McWILLIAMS TIE TAMPER finish tamps any raise up to 6" at speeds up to 720 feet per hour.

**Railway Maintenance Corporation**

BOX 1888

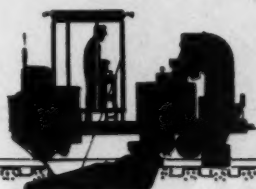
PITTSBURGH 30, PA.



**R.M.C. SPIKEMASTER** spikes ties tightly against the rails, at a rate of better than two ties per minute.



**McWILLIAMS BALLAST DISTRIBUTOR** places ballast in desired quantity and depth in exactly the proper position for tamping.



**3. McWilliams Ballast Distributor** placing ballast in perfect position for tamping.

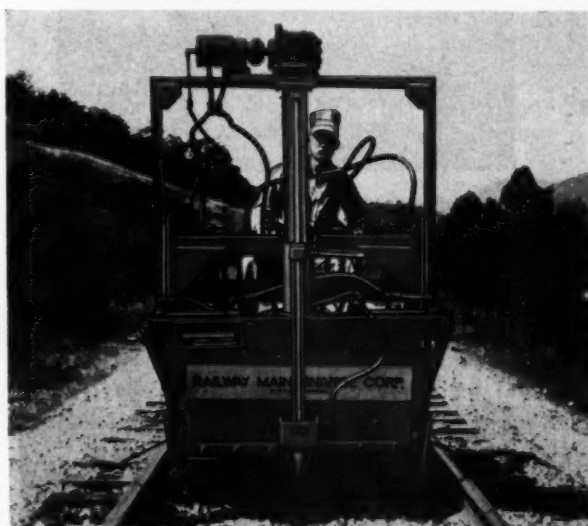


**4. McWilliams Tie Tamper** with split head using controlled pressure to compact ballast under the ties.



**5. R.M.C. LineMaster** aligning the track by moving it horizontally in either direction.

**R.M.C. LINEMASTER** lines over 6,000 feet of track per day, using an operator and one man sighting.



**McWILLIAMS SUPER MOLE** cleans or excavates shoulder ballast, operating at speeds up to 2400 feet per hour.

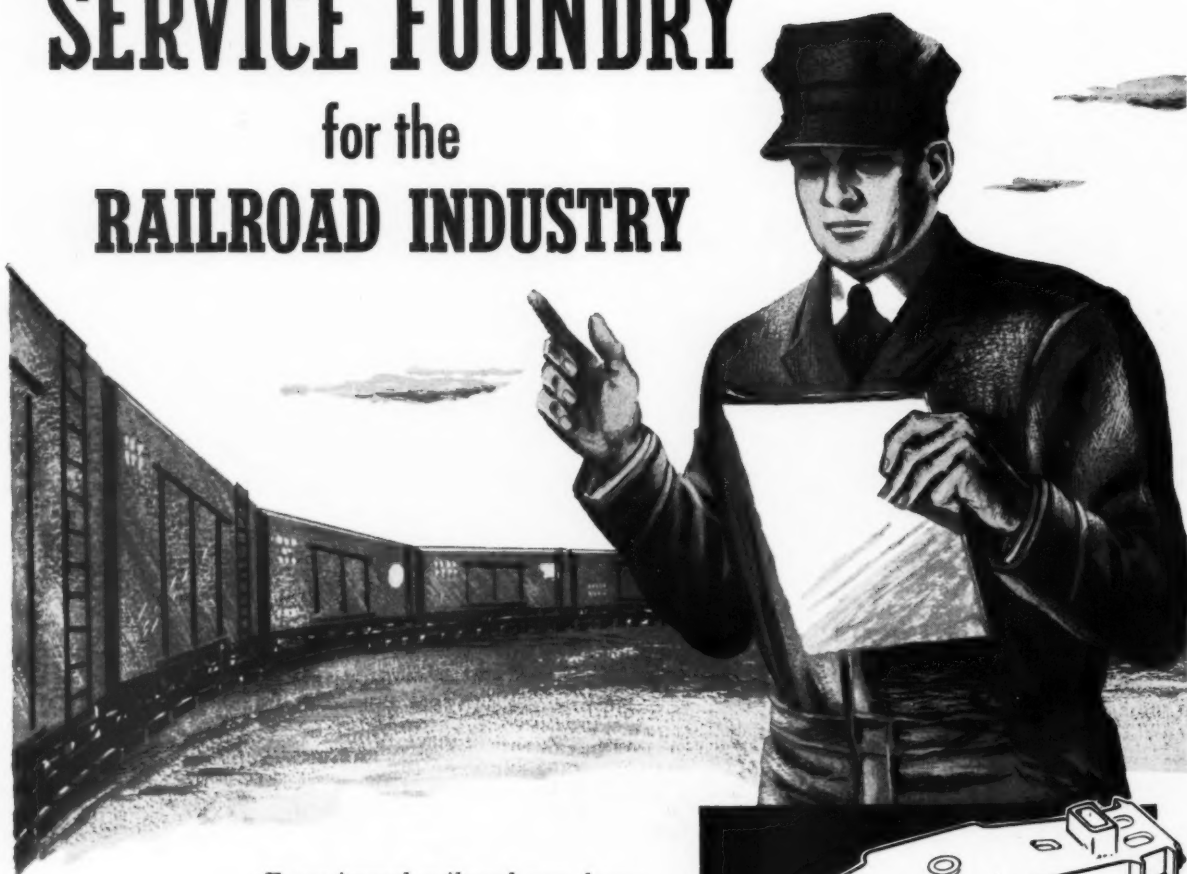




# SERVICE FOUNDRY

for the

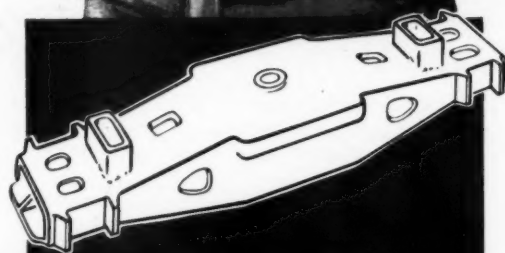
## RAILROAD INDUSTRY



*Experienced railroad men know the value of good sound castings required in the manufacture of freight cars. "SERVICE" has the facilities and engineering experience to cast and machine these and other type castings to meet your most exacting requirements. May we quote you on your next requirements . . .*



**You can depend on "Service" for satisfactory results.**



- FREIGHT CAR BOLSTERS
- FREIGHT CAR TRUCK CASTINGS
- DRAFT GEAR CASTINGS, ETC.

— all to your drawings and specifications.

**SERVICE • INTEGRITY • EFFICIENCY**

**SERVICE FOUNDRY** a division of **AVONDALE MARINE WAYS, Inc.**

416 Erato Street, New Orleans, U. S. A.

P. O. Box 1030, New Orleans, U. S. A.

Cable Address: "Serfdry"

**Where hand scalping costs are too high!**

*Effectively* **Stop Weeds**  
*this low-cost thrifty way!*



NOTHING TO MIX  
NONPOISONOUS  
NO WATER TO HAUL  
NONCORROSIVE  
EFFECTIVE

# Concentrated Borascu®

**SAVE Up to 85% of your grassing costs!**  
Put Concentrated Borascu Weed Killer about your timber structures, yards, tie piles, sidings and buildings to get greatest protection from brush fires at lowest cost! Weeds-grasses are stopped, leaving nothing but bare ground wherever Concentrated Borascu is applied properly. Don't sacrifice your costly man-power on grassing...this modern method is thrifter!

**When Borascu's in...weeds stay out!**  
Weeds and grasses just *can't* grow on soil where Borascu has been applied! And such soil remains sterile for long periods because this inorganic borate doesn't break down. Applications are simple; there is nothing to mix...no water to haul and the most unskilled laborer can do the job. You'll find it pays to use Concentrated Borascu.

*Saves you Dollars!*

*Kills Weeds for Pennies!*



**PACIFIC COAST BORAX CO.**

DIVISION OF BORAX CONSOLIDATED, LIMITED

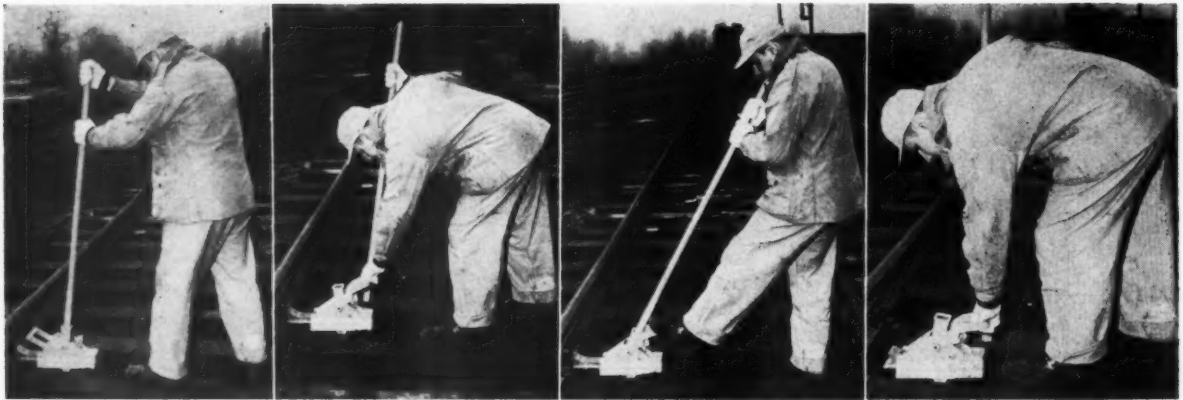
630 SHATTO PLACE, LOS ANGELES 5, CALIFORNIA

RAILWAY TRACK and STRUCTURES

MARCH, 1955

11

## Here Are Two Pieces of Track Equipment That Are Repeating and Gradually Becoming Standard as Labor Saving Devices



READE TRACK ALIGNER in working position, with holding fin inserted in ballast between ties, and jacking rack against base of rail; carrying handle is at front of jack.

After lining has been completed, lining bar has been removed from position in socket and carrying handle thrown to rear of jack.

With lining bar replaced in socket, operator pulls back on it to take strain off holding pawl; at the same time he steps on carrying handle to trip jack and release pressure on rail.

Jacking rack has returned to original position by spring action, and track aligner can now be picked up and moved to next location.

### READE TRACK ALIGNER ▲

Saves up to 50% in time and labor over other methods. No digging of tie ends necessary; track shifts without humping or raising out of cross level. The tool does the heavy work, minimizing chances of strain and personal injury to workers.

### ▼ READE SAFETY CLAW BAR

Designed to protect workers against injury and to eliminate the high cost of reclaiming damaged and bent spikes. Spikes are pulled straight, without danger of workers' back strains.



By pulling spikes straight, costly restraightening is avoided, and because the READE SAFETY CLAW BAR can be operated without danger of back injuries to workers, it is doubly economical.

After the spike is loosened and lifted about 2 3/4" with the lower jaws of the tool, the upper jaws are applied for the final complete removal of the spike from the tie, without "heeling".

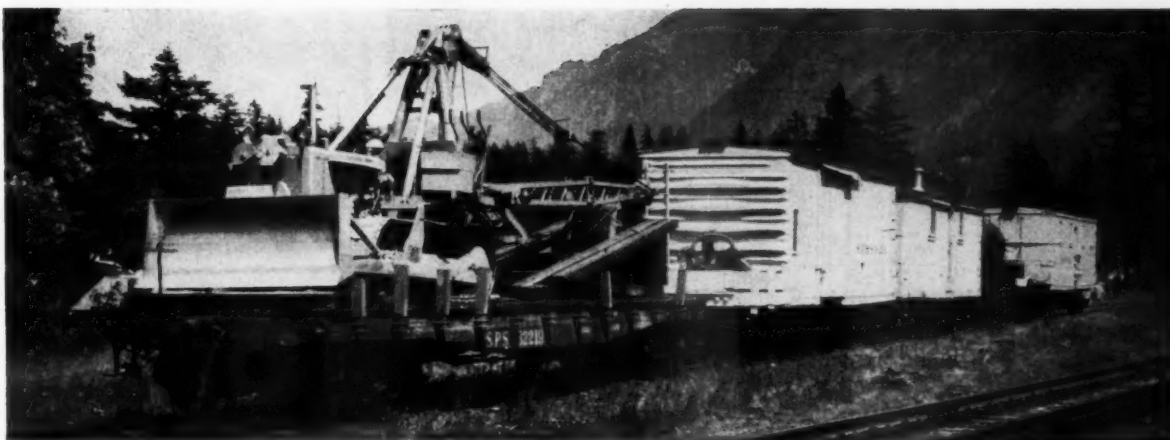
The safety marker indicates the area of the handle to be gripped so that hand injuries cannot occur by pinching against far rail.

## READE MANUFACTURING COMPANY, INC.

JERSEY CITY 2, N. J.

WORKS: JERSEY CITY ● CHICAGO ● KANSAS CITY ● MINNEAPOLIS ● BIRMINGHAM ● STOCKTON





## Two-man work train **CUTS COST** on the S. P. & S.

tractor-mounted  
**HYSTAWAY**  
speeds crane or excavating  
and bulldozing work  
...anywhere on the railroad



The Spokane, Portland and Seattle Railway is combatting the high cost of conventional work-train service with a unit that requires no train crew or locomotive while on the job. Completely self contained and operated by only two men, this outfit consists of five cars and a Hystaway® mounted on a Caterpillar® D6 Tractor equipped with ESCO track-walking shoes and a 6S bulldozer blade.

**When a roadmaster calls** for the unit, it is quickly dispatched by train to the siding nearest the job. The Hystaway then moves to the work site at tractor speeds. Track-walking shoes permit travel directly on the rails, if desired.

**Completely equipped**, the two-man crew can perform crane, bulldozing or excavating jobs such as unloading and loading rail, laying rail, handling ballast material, grading, filling and ditching.

You can mount a Hystaway on a *new or used* Caterpillar track-type tractor *fast* without special equipment

or tractor alterations. Hystaway has "no tail swing".

**Permits working in confined areas**—up against walls, in tunnels and other places where conventional excavator cranes can't operate. Hystaway heavy duty diesel tractor engine power minimizes hang-ups, stalling and expensive engine wear. Ask your Caterpillar-Hyster Dealer for details, or write to: HYSTER COMPANY, 2902-56 N. E. Clackamas St., Portland 8, Oregon, or 1802-56 N. Adams St., Peoria 1, Illinois.

## HYSTER COMPANY

**"Matched Design" Tractor  
Equipment for All  
Industries**





**WORKS IN TUNNELS!** Yes, the Railroad Gradall not only negotiates any tunnel that a train can, but its arm-action boom and low clearance permits working inside tunnels.



**CLEARING ROCK SLIDES,** repairing wash-outs, and other emergency work is a natural for the Railroad Gradall. It can take the shortest route—either high-way or right-of-way—to reach the job in a hurry.



**DRIVES RIGHT OVER TRACK OR ROUGH TERRAIN.** Oversize track-climbing tires and power steering make it easy to drive on or off the track, to select the best possible working position for any job.

## Railroad GRADALL goes anywhere — "takes over" on many different jobs!

● Over *every mile* of your right-of-way — wherever maintenance or emergency service is required—you can have a Railroad Gradall at work in a hurry! And this single, versatile machine, carrying its own quickly interchangeable attachments, handles a wide variety of work—jobs like those listed below and many others—quickly, with arm-action accuracy, and *economically*. You'll find that a Gradall gives you *more working hours* each day, all year long! For a field demonstration of the Gradall right on your own work, write The Warner & Swasey Company, Gradall Division, Cleveland 3, Ohio.

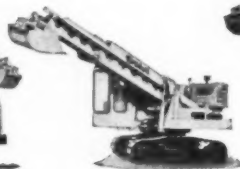
### **NOW**—One machine does all these jobs!

- Cleaning track
- Trenching and backfilling
- Maintaining ditches
- Sloping, grading, excavating
- Laying and aligning rails
- Installing crossings
- Repairing roadbed and distributing ballast
- Emergency work
- Placing culverts, signals, etc.
- Hand finishing and cleanup

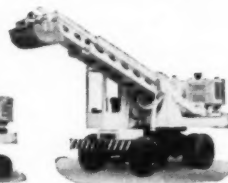
**See Gradalls at the N. R. A. A. Exhibition!**



**GRADALL—  
STANDARD CARRIER**



**CRAWLER-MOUNTED  
GRADALL**



**SELF-PROPELLED  
GRADALL**



**NO TRAFFIC INTERRUPTIONS.** With the Railroad Gradall on the job, you can get off the track quickly. As shown here, there is also ample clearance between trains and the Gradall even when it is not straddling the track.



**LONG REACH FOR OFF-TRACK WORK.** The Gradall's telescoping boom reaches a full 24 feet for work—36 feet with boom extension. The "arm" and "wrist" action of its boom and bucket permit working to 1/4-inch accuracy, if desired.

# Gradall

DIVISION OF

**WARNER  
& SWASEY**  
Cleveland  
PRECISION  
MACHINERY  
SINCE 1880

Distributors in over  
75 principal cities in the  
United States and Canada

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

Bridge over Androscoggin River in Brunswick, Maine: A typical installation of Bird Self-Sealing Tie Pads on older bridge timbers. Photographs courtesy of the Maine Central Railroad.

Close-up shows effective mechanical adzing and excellent positioning of pads. ▶



## Slash your bridge tie costs over 50% with BIRD Self-Sealing TIE PADS

Bird Self-Sealing Tie Pads were installed on this bridge in conjunction with a new rail program. Applied to older bridge decks, which provide a smooth surface on sound wood, Bird Pads will pay substantial dividends in extended service life of timbers in track.

BIRD Self-Sealing Tie Pads form a waterproof, dustproof seal on the tie that protects the vulnerable area under the plates and around the spikes. Mechanical wear and plate penetration are eliminated. This feature is most important on bridge ties which are the most expensive of all ties. *It's a fact:* only two years of additional tie life (over normal expectancy) will more than pay the cost of BIRD

Self-Sealing Tie Pads. Insist on a tie pad which will provide an *effective* seal.

**YOU GET 50% or more extra tie life from new ties.**

**YOU GET at least twice the normal remaining life expectancy from old ties that can be adzed to a smooth surface on sound wood.**

**BIRD PROVEN BEST!** The original self-sealing tie pad — proven by years of in-track experience.

Start now. Write today to BIRD Tie Pads, Dept. HTS-3, East Walpole, Mass.

**BUY THE BEST**



**BUY BIRD**





"These weeds tickle, George . . . next time let's ride a railroad that uses Chipman weed killers."

Chipman Chemical Company weed killers and application service are backed by over 40 years of experience in serving railroads. An extensive line of weed, grass and brush killing chemicals is available to meet varying conditions. Included are the following:

Atlacide Liquid  
Atlacide Spray Powder  
Chlorax Liquid  
Chlorax "40"  
TCA-Chlorax

Methoxone-Chlorax  
Atlas "A" Arsenical  
Atlas Contact  
Brush Killer  
Borax • CMU • Dalapon

Let us solve *your* weed problems with the *right* chemicals and application service.

## CHIPMAN

### Chemical Company, Inc.

Railroad Div. Headquarters: 608 So. Dearborn St., Chicago 5

Executive Offices: Bound Brook, New Jersey

#### 16 Strategically Located Chipman Plants





#### BALLAST CLEANER & DISTRIBUTOR

Used for cleaning ballast removed by Undercutter, cleaning shoulder ballast, and for picking up ballast from shoulder and placing in track for surfacing.

The Kershaw Undercutter-Skeletonizer, working with the Kershaw Ballast Cleaner, saves labor, machines and material. They are the only two machines on the market today which will obsolete existing machines and save material in the same operation.

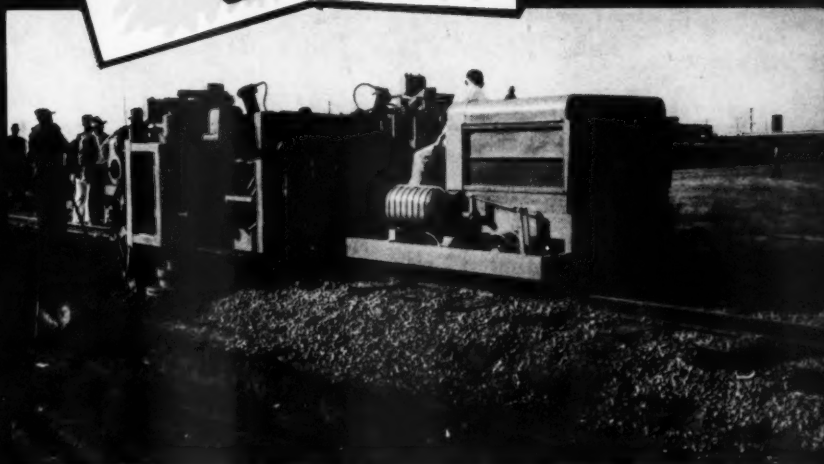
#### Here's a summary of these savings:

1. Saves in replacing and spacing ties.
2. Saves ballast.
3. Provides new grades and profiles.
4. Saves raising roadbed.
5. Saves raising bridges.
6. Removes and disposes of old ballast.
7. Eliminates shoulder ballast cleaning.
8. Work trains not required.
9. Increases life of ties.
10. Adds two or three years to the reconditioning cycle.
11. Cleaned ballast under tie and in cribs provide positive drainage.

# KERSHAW

## Presents

**2**  
**NEW STARS**  
**OF THE**  
**KERSHAW**  
**LINE!**



#### UNDERCUTTER AND SKELETONIZER

Used for skeletonizing when track is raised and as undercutter to lower existing track.

*Recognize This Symbol of Leadership*

**KERSHAW**  
**MANUFACTURING CO. INC.**

MONTGOMERY



ALABAMA

# WHAT IS THE KERSHAW "Try and Buy Plan"?

Phone 3-3581

P. O. Box 510

## KERSHAW MANUFACTURING COMPANY

INCORPORATED  
Manufacturers of Railway Maintenance Equipment  
2205 WEST FAIRVIEW AVE.  
MONTGOMERY 1, ALABAMA

Mr. Chief Engineer

Dear Sir:

The Kershaw Try It, then Buy It plan is simply this:

We ship you a brand new machine and furnish a supervisor to instruct your operator in the use of this machine. You try this machine on your railroad for a reasonable length of time free of charge. At the end of the free trial period, if you do not like the machine ship it back to us.

If you would like further tests, operating it under your conditions, then you may rent it. At the end of one month, if you do not like the machine, return it. If you do like the machine, you may rent it for another month.

So, you may now try any of our machines before you buy until all of you are positive that the machine does your job. In short, you do not have to risk thousands of dollars by buying a machine, trying it and hoping it will do the job you need.

The Kershaw Try It and Buy It plan makes common sense. If you like it after you try it, you can buy it. If you do not, send it back.

Sincerely,

  
ROYCE KERSHAW



*Trackwork Equipment Developed and Proven on the Job*

KERSHAW KRIBBER • RAIL • UTILITY DERRICKS • JACK-ALL • TIE REPLACER • HYDRAULIC TRACK JACK • TRACK BROOM  
• BALLAST REGULATOR, SCARIFIER • PLOW • MOCAR CRANE • PNEUMATIC TIE HIPPER • TELESCOPIC SPOTBOARD

Recognize This Symbol of Leadership

**KERSHAW**  
MANUFACTURING CO. INC.

MONTGOMERY



ALABAMA

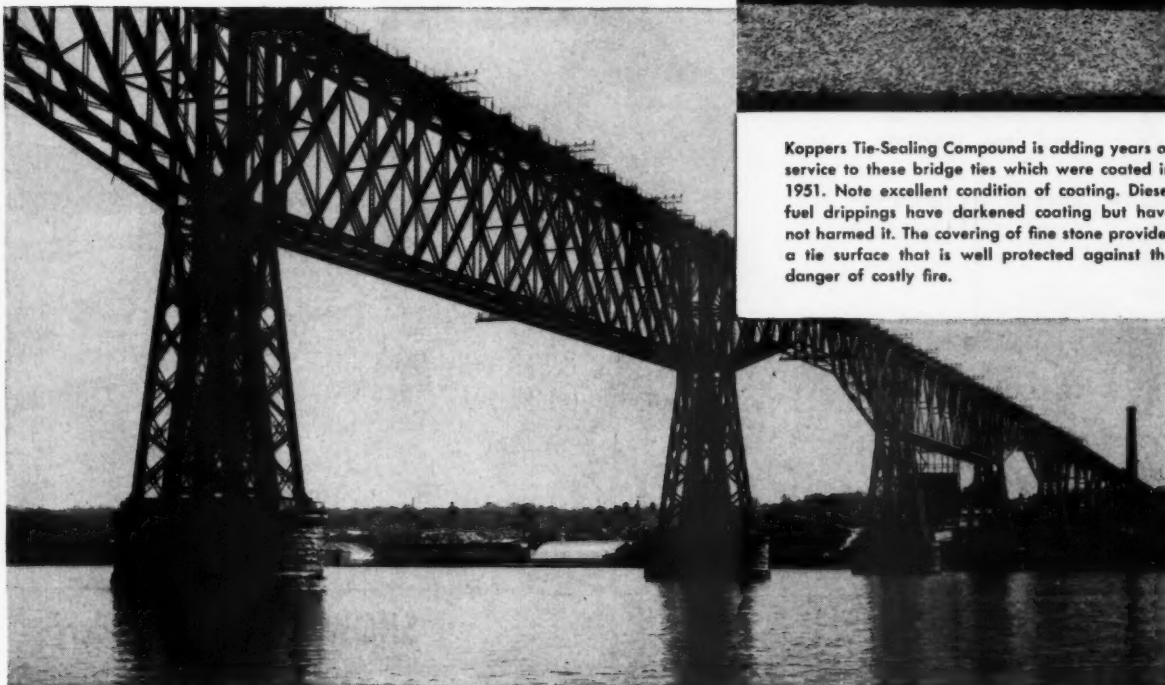


# With Koppers Tie-Sealing Compound...

## railroad protects bridge ties against premature failures



Koppers Tie-Sealing Compound is adding years of service to these bridge ties which were coated in 1951. Note excellent condition of coating. Diesel fuel drippings have darkened coating but have not harmed it. The covering of fine stone provides a tie surface that is well protected against the danger of costly fire.



New York, New Haven and Hartford Railroad Bridge at Poughkeepsie, N. Y. Approximately 80% of these bridge ties have been coated with Koppers Tie-Sealing Compound for protection against cracks and checks. Balance of ties are expected to be coated in the near future.

**R**AILROAD ties take a beating—bridge ties in particular. Besides being pounded by heavy-tonnage haulage, they are "wide open" to the elements. And bridge ties are difficult to replace—costly to replace.

That's why it's a wise precaution to use Koppers Tie-Sealing Compound. This specially-processed coal-tar coating fills in and seals up splits and cracks, retards their spread, protects ties

against decay and premature failure.

Safety is an added "bonus" with Koppers Tie-Sealing Compound. A special chemical formulation makes it fire-retardant while it is being applied. After the material is on, a covering of fine stone greatly increases the protection of the bridge structure against fire hazard.

May we suggest that you try Koppers

Tie-Sealing Compound on your railroad. Based on actual experience, this protective coating will increase the service life of bridge or crossties by at least 5 years. Our sales representative will be glad to discuss the savings that Tie-Sealing Compound may effect in your maintenance of way. Write Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa.

**DETAILS AND PRICE INFORMATION ON REQUEST**



### TIE-SEALING COMPOUND

**KOPPERS COMPANY, INC.**

**Tar Products Division, Pittsburgh 19, Pennsylvania**

**DISTRICT OFFICES: Boston, Chicago, Los Angeles, New York, Pittsburgh, and Woodward, Alabama**

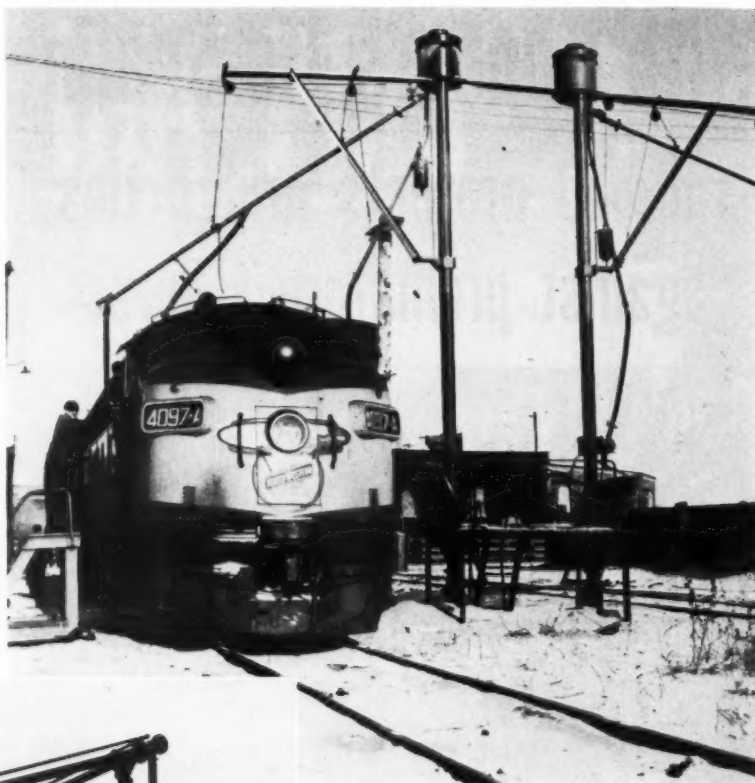


# SNOWCO

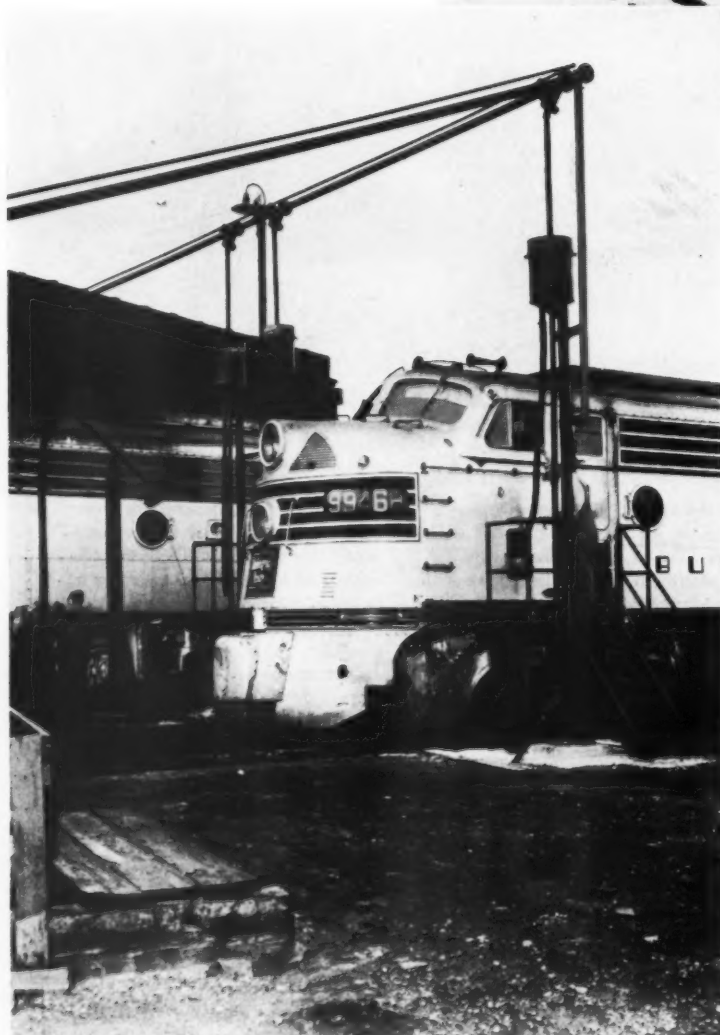
## Direct Sanders

- Type "A"  
side pockets only.
- Type "C"  
top pockets only.
- Type "D"  
will sand all units.  
Flexible for high  
and low pockets.

Served by ground-level storage tanks.



Above: Type "D"; at left: Type "A"  
SNOWCO Direct Sanders.



## SNOWCO Direct Sanders

require minimum foundations,  
minimum erection, minimum  
maintenance.

Several served by one storage  
tank. No valves in sand piping.  
Sand flows automatically to  
sander when hose valve is  
opened.

Procedure  
being patented.

**T. W. SNOW**  
CONSTRUCTION CO.  
9 South Clinton St., Chicago 6



- **LONGER LIFE** — The Improved GAUTIER is made of tough, durable, alloy spring steel, adding years of wear and usefulness, reducing maintenance-of-way costs.
- **MORE EFFICIENCY** — The Improved GAUTIER is designed with sufficient take-up to be used again and again on both new and used rail.
- **EASIER INSTALLATION** — The Improved GAUTIER can be installed or removed with maul or spike maul, and can't be overdriven.

Write for complete information and folder about this outstanding rail anchor.

Manufactured and sold exclusively by

## MID-WEST FORGING & MANUFACTURING COMPANY

General Office, 38 South Dearborn Street, Chicago 3, Illinois • Manufacturing Plant, Chicago Heights, Illinois

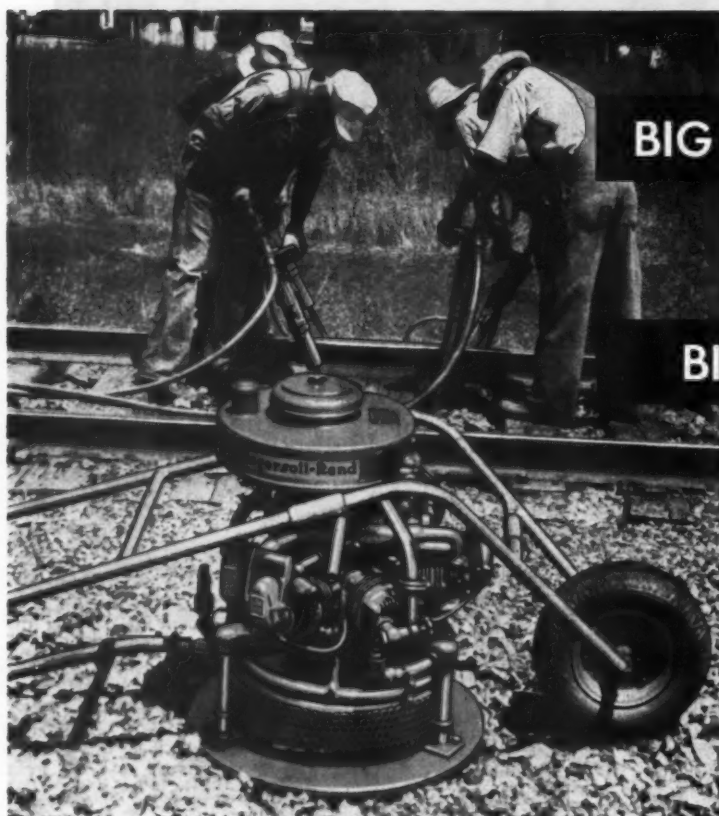
Distributors: D. V. MAHER, Cleveland, Ohio; MILTON W. ALLEN, Denver, Colorado; JOHN O'BRIEN, St. Paul, Minnesota



See us at booth No. 183  
National Railway  
Appliance Exhibition  
Coliseum • Chicago  
March 14, 15, 16 and 17

# SPOT-AIR

## the little compressor that does a big job



### BIG IN PERFORMANCE

Operates **FOUR**  
Ingersoll-Rand MT-4 Tampers

### BIG IN ECONOMY

**SAVES SPACE**—only 32" high  
on a 27" base plate

**SAVES LABOR**—readily moved  
from one spot to another

**SAVES UPKEEP**—rugged  
construction, minimum  
maintenance

The SPOT-AIR, operating *four* MT-4 railroad tie tampers, delivers 36 cfm at 80 psi. With wheelbarrow mounting shown, one man can readily take it almost anywhere.

From its comparatively small size, you wouldn't suspect this compact SPOT-AIR Compressor could deliver so much air power so economically.

SPOT-AIR weighs only 265 lbs. It's a self-contained, single-stage, gasoline-powered compressor. Because it is completely air-cooled, you can use it in any kind of weather—without danger of freezing in winter—or overheating in summer.

With *four* I-R Type MT-4 Tampers,

the 3R-36 SPOT-AIR makes a complete air-tamping team. You'll find it saves time and improves work in practically any job where air power is applicable. For further information, see your nearest Ingersoll-Rand representative.

## Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

#### AIR TOOLS

Spike Drivers	Wood Borers	Backfill Tampers
Grinders	Riveting Hammers	Paving Breakers
Impacttools	Rivet Busters	Pumps
Wire Brushes	Scaling Tools	Utility Hoists

COMPLETE  AIR POWER  
TO MEET NEEDS OF ANY JOB

#### PORTABLE COMPRESSORS

A complete line in 36, 60, 85, 125, 210, 315, and 600 cfm sizes.

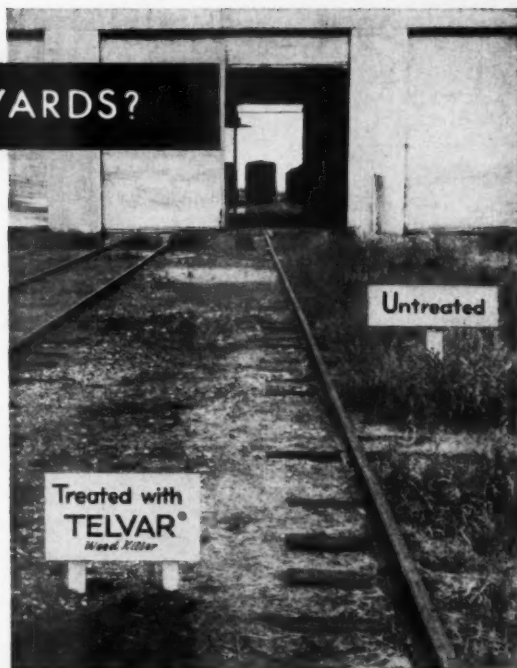
## WEEDS IN RAILYARDS?

### One application of **Du Pont Telvar**<sup>®</sup>

WEED KILLERS

stops weeds for the  
season—or longer!

"Telvar" kills weeds through the roots . . . prevents regrowth. Low rates (20 to 80 lbs. per acre) make it cost little for the results you obtain . . . also mean less handling, fewer storage problems. To cut maintenance costs to new low levels, put "Telvar" in your weed-control program. Available in two formulations: "Telvar" W, and "Telvar" DW.



"Telvar" is ideal for weed control in yards, sidings, key areas. It's low in toxicity to humans and animals, non-volatile and non-corrosive to equipment.

## BRUSH ON RIGHT-OF-WAY?



Brush along right-of-way was controlled with "Ammate."  
"Ammate" allows low-growing cover to return to resist erosion.

**FREE ILLUSTRATED BOOKLETS** describe how to control weeds and brush with Du Pont chemicals. For your copies, write to Du Pont, Grasselli Chemicals Dept., Rm. D-4032, Wilmington 98, Del. In Canada, Du Pont Company of Canada Limited, Box 660, Montreal.

*On all chemicals always follow directions for application. Where warning or caution statements on the use of the product are given, read them carefully.*

### One application of **Du Pont Ammate**<sup>®</sup>

WEED AND BRUSH KILLER

kills more kinds of brush  
—safely—at lower cost!

"Ammate" kills more kinds of brush and keeps it down longer than most weed and brush killers! When the original spray job is done well, brush is kept under control for years with only an occasional spot spray. You can rely on "Ammate" to do the job safely, even where your right-of-way adjoins cropland, because "Ammate" is not volatile. There are no vapors to drift onto sensitive crops. It is no hazard to crews, stock or wildlife.

**Telvar**<sup>®</sup>

Weed Killers for  
industrial use



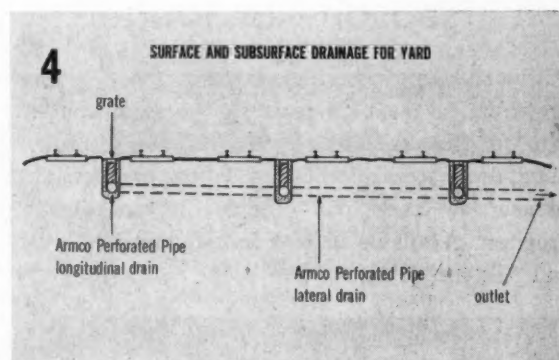
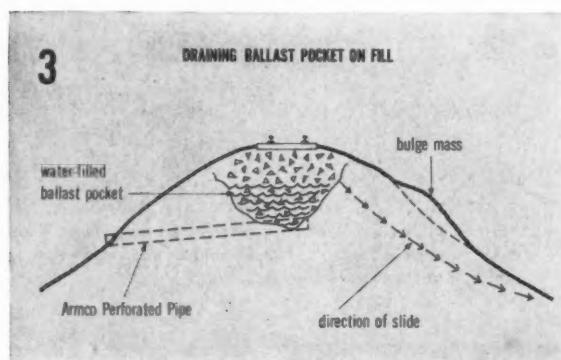
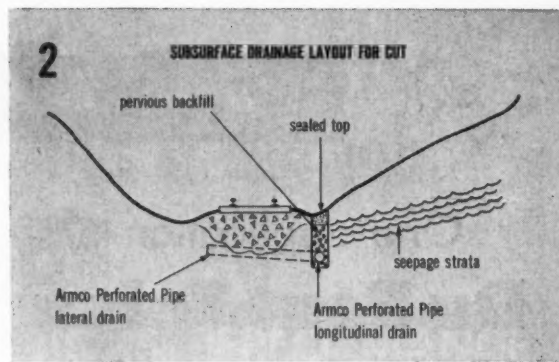
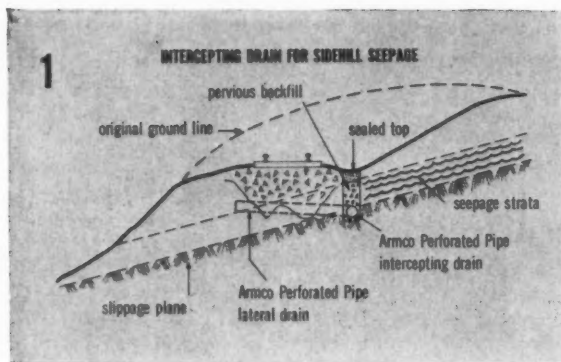
REG. U. S. PAT. OFF.

**Ammate**<sup>®</sup>

Weed and Brush Killer

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY





## HERE ARE 4 WAYS to eliminate excess water

Armco Perforated Pipe\* is the efficient, economical way to remove harmful ground water and stabilize roadbeds once and for all. Slow orders and recurring maintenance are a thing of the past.

The accompanying four drawings show how Armco Perforated Pipe solves subdrainage problems under various typical railroad conditions. It is ideal to cure trouble spots on established roadbeds or for new construction. Installation is easy and fast with your own crews.

Armco engineers will be glad to work with you on your specific problems. Write us today for data and recommendations. Armco Drainage & Metal Products, Inc., 4675 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.



\* Armco Perforated Pipe is made of corrugated metal and supplied in diameters from 6 to 48 inches. Lengths up to 20 feet. Quickly attached coupling bands join individual lengths into a strong, integral conduit. No danger of disjoining or breaking.

# ARMCO PERFORATED PIPE





MAIN  
ENTRANCE

## Fairbanks-Morse Invites You...

To see the latest in:

Motor Cars

Electronic Scales

Pumps

Electric Motors

Portable Generators

Hand Lamps

AT THE A.R.E.A. CONVENTION MARCH 14-17,  
AT THE COLISEUM IN CHICAGO.



### FAIRBANKS-MORSE

*a name worth remembering when you want the best*

RAIL CARS AND RAIROAD EQUIPMENT • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • PUMPS • SCALES • WATER SERVICE EQUIPMENT • MAGNETOS

# HANDY AS



# A PAIR OF PLIERS!

**D Tournapull speeds both  
yard and road work**

**SEND NOW TO:**

**LeTourneau-Westinghouse Company**

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company



On production earthmoving, "D" can be used in pusher-fleets, or a pair of "D's" equipped with dozer blades can push-load each other. Bulldozer blade can also stockpile coal . . . spread ballast . . . handle emergency dozing. It can also fill around culverts, clean ditches, and handle other dozer assignments.

## 1-REPLACES

## 2-SUPERIOR

By self-loading, "D" eliminates shovels and multiple haul units. With top speed comparable to trucks, Tournapull hauls fast over highways, over rough roads and along right-of-way . . . goes places where a truck cannot. Its big, single tires roll over tracks, ties, and rocky footing as easily as small tires roll over gravel.



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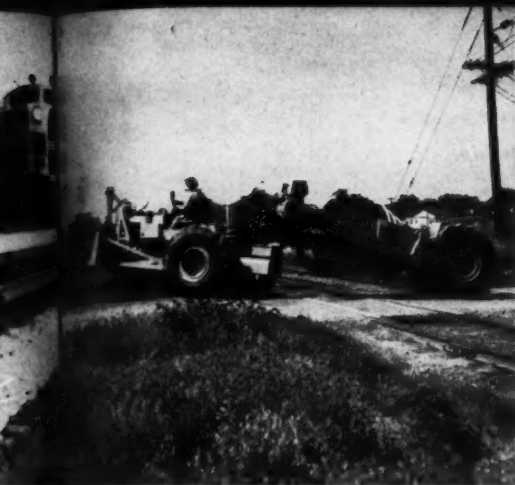
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NAME  
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The D Tournapull is *one-man work crew* which will speed both normal and emergency service anywhere in your division. Ready to work at a moment's notice, this 122 hp machine takes shortest route between jobs at speeds up to 28 mph. It can travel over highway, cross-country or along right-of-way.

Fast moves away from track are readily made at the approach of traffic. Less than a minute after train is past, "D" is back on job. No time is lost dead-heading work train to nearest siding. Through traffic stays on schedule. Wasted work time, headaches of supervision, dispatching, and signaling are eliminated.

Easily mounted, correctly curved V-type Snow Plow, makes "D" efficient for snow service. With power-proportioning differential, unit goes anywhere to open yards, sidings, loading tracks, crossings, access roads . . . saves rail snow plows for main-line plowing. Scraper can also be used to load and haul away snow and ice.

## work trains and crews on scattered jobs

## to crawler-scrapers or shovels and trucks

With turn radius of 12'8", instant electric controls, and speeds to 28 mph, Tournapull can *double or triple* output of crawler-scrapers on most hauls. Four tires replace over 500 wearing parts of crawler track assembly which constantly grind in grit . . . outlast a set of tracks as much as 4 to 1 in some soils.

Large, square, top opening allows fast, easy loading of ballast or other material from hopper. Washwater quickly drains away . . . eliminates hauling unnecessary weight. Big 9-ton, 7-yard capacity bowl is unloaded in seconds . . . load can be spread in layers 1" to 26 1/2" deep, or piled in one place.

Tournapull's large bowl carries tools, supplies, and extra fuel to job site. No need to wait for work-train. There are no delays for loading or unloading machine from flat car or trailer, no time wasted planking to take crawlers over tracks. Unproductive time when shovel waits for trucks or cars is eliminated.



Tournapull, Tournamatic—Trademark Reg. U.S. Pat. Off. DP-361-RR

NAME ..... TITLE .....

ADDRESS .....

RAILROAD .....

CITY ..... STATE .....

- ☐ Please tell us more about  
9-ton, 122 hp D Tournapull
- ☐ Also interested in your  
19 mph tractor on rubber





"WE BOUGHT OUR

*Second*\*

**ORTON** CRANE  
BECAUSE...

"The ORTON crane delivers more actual hours 'on-the-job' work than any crane we've ever owned!"

(One reason is that an ORTON is so easily maintained. With all its modern developments, ORTON cranes have not sacrificed easy access to working parts.)

Don't overlook that an ORTON not only delivers more working hours, but, Air-operation and

*Torque-Control*

makes operating hours less fatiguing to man and machine! The efficiency of patented power-through-liquid Torque-Control is unapproachable by even the most complicated mechanical or electrical systems. Torque multiplication is always and instantly at the exact load requirement.

**ORTON**

CRANE AND SHOVEL CO.

608 S. DEARBORN ST., CHICAGO 5, ILLINOIS

Send for Catalog No. 84

\* Send for a list of ORTON purchasers who have bought three or more cranes since the application of Torque-Control. We want you to base your decision on the testimony of ORTON owners.



*In all  
The "48"\**

*\*And Canada too!*

**THE RAIL JOINT CO. INC.**

50 CHURCH ST. NEW YORK 7, N. Y.

One of the great rail throughfares of America—the  
double track main line of Atlantic Coast Line Railroad.





# YOU NEED BOTH . . .

## ECONOMICAL *Proven* WEED

## AND BRUSH KILLING SERVICES

Chemical treatment of your *whole* roadway makes good sense—and saves maintenance dollars. Bogle experience has been extensive in both "roadbed" and "right-of-way" applications. We have the right kind of chemical for every job and the know-how that only 30 years plus in the business can give.

Add to this a fleet of fully-equipped, modern spray cars and experienced operating personnel and you have our prescription for a complete, well-integrated weed and brush killing service that meets today's needs at the lowest possible cost per mile.

We shall gladly work out a Bogle program with you in the light of your own needs.

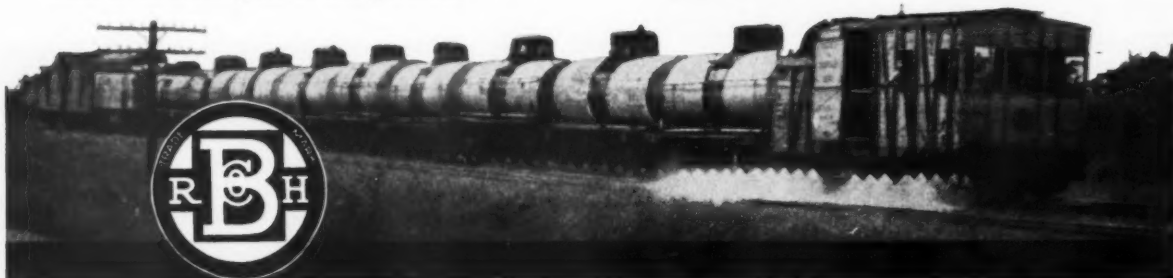
Visit our Booth—No. 5-N at N.R.A.A. Exhibit

### THE R. H. BOGLE CO.

ALEXANDRIA, VA.

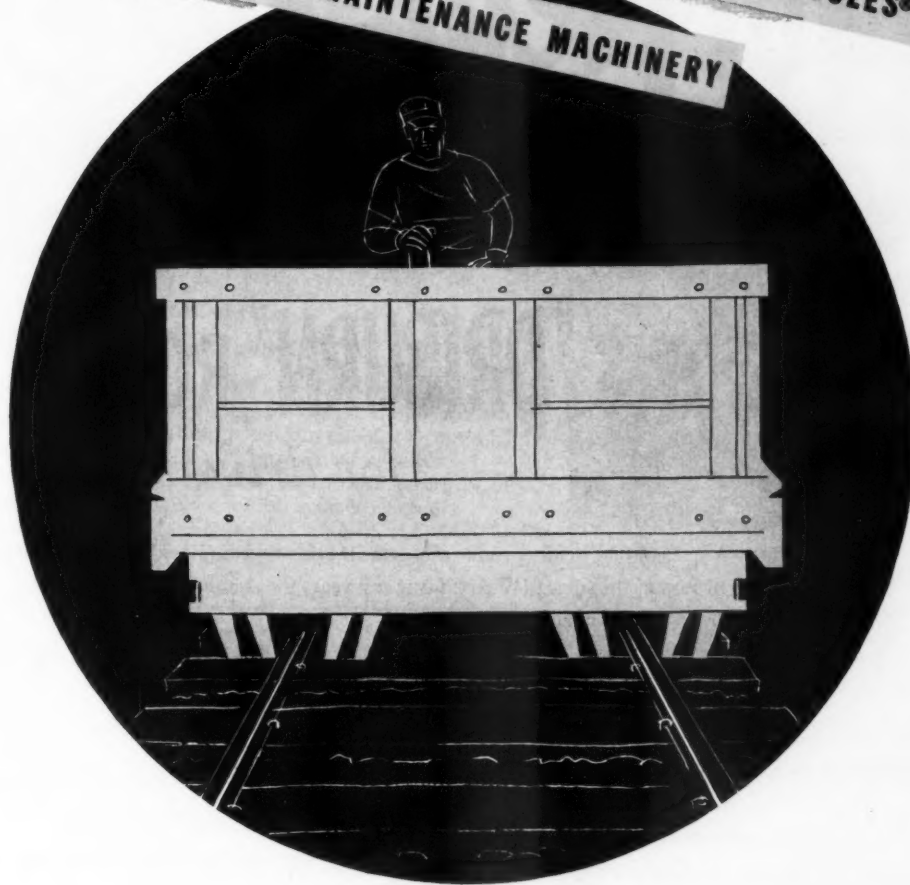
Memphis, Tenn.

Complete Weed and Brush Killing Service





... THE BIG NEWS FOR '55 WILL BE THE ALL-NEW NORDBERG  
 "GANG-TAMPER"... ANOTHER EFFICIENT SET OF MECHANICAL MUSCLES®  
 FROM THE LEADING BUILDER OF MAINTENANCE MACHINERY



... BE SURE TO SEE THIS NEW  
 NORDBERG TAMPER—AND ALL THE OTHER  
 MONEY-SAVING NORDBERG MAINTENANCE  
 MACHINERY AT THE 1955 N.R.A.A. EXHIBIT IN  
 SOUTH HALL, CHICAGO COLISEUM, MARCH 14-17.



**USE NORDBERG**  
**"Mechanical Muscles"®**  
 TO DO A BETTER,  
 FASTER MAINTENANCE  
 JOB AT LOWER COST

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R455

ADZING MACHINE • BALLAST ROUTER • CRIBEX • BALLASTEX • SCREENEX • HYDRAULIC  
 & MECHANICAL SPIKE PULLERS • SPIKE HAMMER • TIE DRILL • POWER JACK • POWER WRENCH  
 • RAIL DRILL • RAIL GRINDERS • TRACK SHIFTER • DSL • YARD CLEANER • TRAKLINER •  
 GANG TAMPER • DUN-RITE GAGING MACHINE • GANDY—TIE PULLER and INSERTER

**NORDBERG MFG. CO., Milwaukee, Wis.**





# It's New!



## LINDE'S "DRIBURN" ROD for driver burns

DRIBURN welding rod to eliminate trouble-breeding driver burns is a companion rod to LINDE's popular MW rod, for many years the standard rod for building up rail ends, frogs, and switch points.

DRIBURN welding rod has what your track-welders need:—

- \*Designed specifically for build-up of driver burns.
- \*Metal deposit has same hardness as rail steel.
- \*Has the same excellent flow characteristics as LINDE's MW rod.

DRIBURN welding rod is green tipped for easy identification. It comes in  $\frac{3}{16}$ - and  $\frac{1}{4}$ -inch diameters, 36 inches long.

A trial will convince you. See your LINDE representative or write to LINDE for a supply of the new DRIBURN welding rod.

"Driburn," "Linde," "MW," and "Oxweld," are registered trade-marks of Union Carbide and Carbon Corporation.

**RAILROAD DEPARTMENT**  
**Linde Air Products Company**  
A Division of Union Carbide and Carbon Corporation

30 East 42nd Street **UCC** New York 17, N. Y.

Offices in Other Principal Cities  
In Canada: DOMINION OXYGEN COMPANY  
Division of Union Carbide Canada Limited, Toronto

Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under the familiar symbol . . .



Here's the **RIGHT** WAY TO CONTROL WEEDS...

**Rite-o-way\***

BRAND

**WEED KILLERS**

**RIGHT for the big jobs**



**TCA-CHLORATE Liquid Concentrate in Tank Car Lots for Spray Train Application.**

General Chemical's "Rite-o-way" Brand TCA-CHLORATE is made especially for large-scale railroad weed control operations. This special high-strength formulation of sodium trichloroacetate and sodium chlorate is an outstanding all-purpose weed killer used on leading railroads. General Chemical's Railroad Weed Control Service can furnish you with a complete, professionally planned control program for using "Rite-o-way" TCA-CHLORATE, including equipment and trained technical crews to do the spraying.



General Chemical's Railroad Weed Control Service provides the most advanced type of spray trains with specially designed spray heads to give complete control for all conditions.



Spray apparatus is designed to provide variable volume of output for greater kill where heavier weed growths are found.

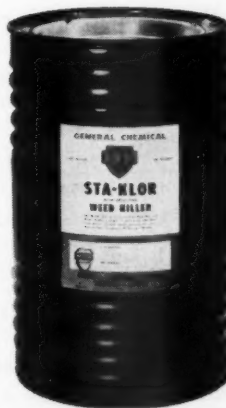
**RIGHT for the small jobs**



**"STA-KLOR" Spray Powder in 100-lb. Drums for Dry or**

**Wet Application by your regular labor crews.**

For those nuisance jobs of weed killing in terminal yards, rip tracks, storage yards, station curbs and driveways, switches, ladder tracks and many more. STA-KLOR is the same powerful herbicide as "Rite-o-way" TCA-CHLORATE, a high-strength formulation of sodium trichloroacetate and sodium chlorate. A convenient spray powder—it can be used both as a dust and a spray. Handy 100-lb. drums; can be applied by your regular labor crews.



**General Chemical STA-KLOR\* gives you these big advantages:**

- Economical.
- Easy to handle . . . easy to use.
- Gets both broad-leaved and grassy weeds.
- Kills roots, prevents re-growth.
- Does not create fire hazard . . . retards burning.

\* Reg. U. S. Pat. Off.



Be sure to visit our exhibit—Booth 179—at the National Railway Appliances Association Exhibition—Chicago Coliseum—March 14-17

**GENERAL CHEMICAL DIVISION**

ALLIED CHEMICAL & DYE CORPORATION  
40 Rector Street, New York 6, N. Y.



## News Notes

... a resumé of current events throughout the railroad world

### RAILWAY

## TRACK and STRUCTURES

MARCH, 1955

The Southern has ordered \$2.5 million worth of track-maintenance equipment from the Railway Maintenance Corporation. It is reported that this order represents a part of total purchases aggregating about \$4 million. The order, one of the largest single purchases of track equipment ever made, is for 82 machines. These include: 30 McWilliams Tie Tampers, 22 RMC TieMasters, 17 RMC SpikeMasters and 13 RMC LineMasters. Delivery is to begin immediately and will extend through 1955.

"We are not dealing with crooks, grafters or racketeers," says Chairman Richard F. Mitchell of the Interstate Commerce Commission in calling for an end to what he calls the Commission's "petty regulation" in dealing with the nation's common carriers. He defined "petty regulation" as "small things—neither helpful to the industry nor to regulation, but troublesome and expensive."

A reliable source reports that there is a possibility of a merger of the Minneapolis & St. Louis and the Toledo, Peoria & Western. This news, coupled with the TP&W's determination to acquire the Illinois Terminal, would make it seem at least remotely possible that a true "Minneapolis & St. Louis" system could be formed. All three roads connect at Peoria, Ill.

The Brotherhood of Railroad Trainmen has announced that it will "go down the line with the nation's railroads on their requests for a freer hand in rate-making." BRT President W. P. Kennedy said it was "unrealistic and unfair for the carriers to be burdened with certain . . . rate-regulatory policies which were determined 60 or 70 years ago and which do not permit the railroads to cope adequately with today's competitive or general economic conditions."

Six railroad shop-craft brotherhoods will seek a guaranteed annual wage this year if the program proposed by a council of the respective presidents is adopted at a convention in Chicago this April.

Canadian railway labor groups will reportedly seek government subsidy for railways so that the roads can pay higher wages and larger "fringe benefits". Changes in the conduct of railway-wage negotiations will also be sought. Both demands are a result of labor's disappointment over the outcome of the compulsory one-man arbitration award to "non-ops" in last year's fringe-benefit dispute.

What is said to be the first permanent television installation of its kind in the United States has been installed in the RF&P Potomac Yard at Alexandria, Va. The installation permits instant identification to freight cars entering the yard from the South, and is reported both to speed up and to cut the cost of handling cars before they are switched to outbound tracks to be made up into new trains.

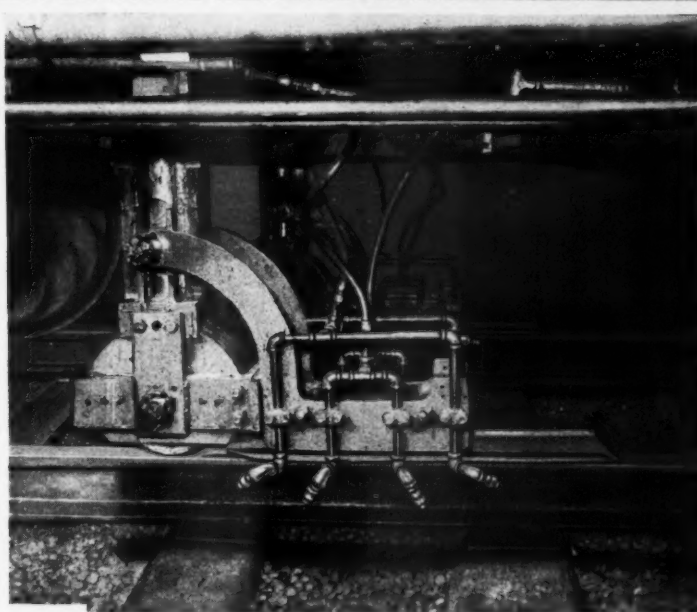
Both major Canadian railroads have announced that they will inaugurate new transcontinental trains—fully dieselized, newly equipped and operating on considerably faster schedules than any present trains. Service is to begin April 24 between Montreal, Toronto and Vancouver.



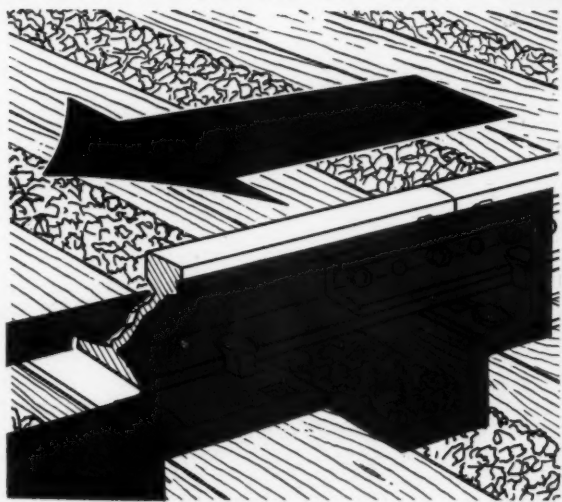
# NEW! Nalcoat

## RAIL and RAIL FASTENING ANTI-CORROSION COATING PLUS ECONOMICAL APPLICATION SERVICE

- ★ Up to 140 miles per day . . . At less cost than manually coating angle bars alone!
- ★ Precision equipment assures complete coverage of receding as well as approaching surfaces of angle bars and rail fastenings.
- ★ Uniform spray pattern . . . From mid-point of outer edge of rail head to outer edge of tie plate.
- ★ Special equipment permits complete spraying of turnouts.



Above photo of Nalcoat Spray Machines shows protective shield covering running surface of the rail. Unique control devices assure complete, uniform coverage regardless of variations in gauge and elevation.



- Arrow above shows direction of Nalcoat Spray Car travel. Even though Nalcoating goes on rail at up to 20 miles per hour, coverage, of both receding and approaching surfaces, is complete . . . and so is corrosion prevention!

**N**ALCOAT offers the lowest-cost answer for rail and rail-fastening protection against the expensive, dangerous damage caused by corrosion. New precision spray machines and experienced operators combine to put a tough protective coating over rail, tie plates, spikes, bolt heads, angle bars and anchors at a total cost which is proving to be less than the cost of manually painting angle bars alone!

Here is real, long-lasting protection for the large investment your road has in rail and rail fastenings. Write for additional data—or call your Nalco Representative now!

(Note: Nalcoat Spray Car scheduling is underway. Late winter and spring are ideal seasons for Nalcoating. Act today to get Nalcoat corrosion control!)

### NATIONAL ALUMINATE CORPORATION

#### SPRAY SERVICES DEPARTMENT

6196 West 66th Place

Chicago 38, Illinois

In Canada: Alchem Limited, Burlington, Ontario

P. O. Box 3444

Huntington, West Virginia

ANOTHER

**Nalco**

SERVICE . . . Serving Railroads through Practical Applied Science

# "I've been making Trackwork p

*Mr. Bruce working on a pattern for a solid manganese frog, A.R.E.A. type.*



UNITED STATES STEEL

# rk patterns for 42 years''

**SAYS** *Archie Bruce,* **U.S. STEEL PATTERN MAKER**

● In 1912, Archie Bruce started to work as an apprentice pattern maker at U.S. Steel's Johnstown Works. It was almost a family tradition that he should, since his father, too, was a pattern maker—for 37 years.

Archie Bruce fashions perfect patterns from top grade California pine for every type of casting used in Trackwork—from small chocks to huge one-piece cast crossings. He is the master of innumerable tools; gouges, chisels, knives, saws, planes, braces and bits, turning tools, measuring tools—all tools for shaping wood. But adeptness at woodworking is only the beginning.

With blueprints as his guide, the pattern maker must be able to visualize each completed, machined casting in its three-dimensional form. He must know foundry practices and limitations, molding and core making. He must be familiar with machine shop practices so that he can provide the proper amount of excess stock for finishing—surface metal which will eventually be removed from the casting. And since he makes his pattern slightly oversize to allow for eventual shrinkage of the casting during cooling, the pattern maker must be familiar with the metallurgical properties of the steel being used.

From the precise patterns Archie Bruce produces, molds are made. From these molds come castings of tough manganese steel. The finished size and shape of the casting is completely dependent upon the accuracy of the pattern. Thus, a great deal depends on Archie Bruce. Forty-two years of pattern making, however, have made him more than equal to the job of turning out superior work. Here is a superb craftsman; another reason for our saying—*years of experience, plus painstaking manufacture, make USS Trackwork the finest you can buy.*

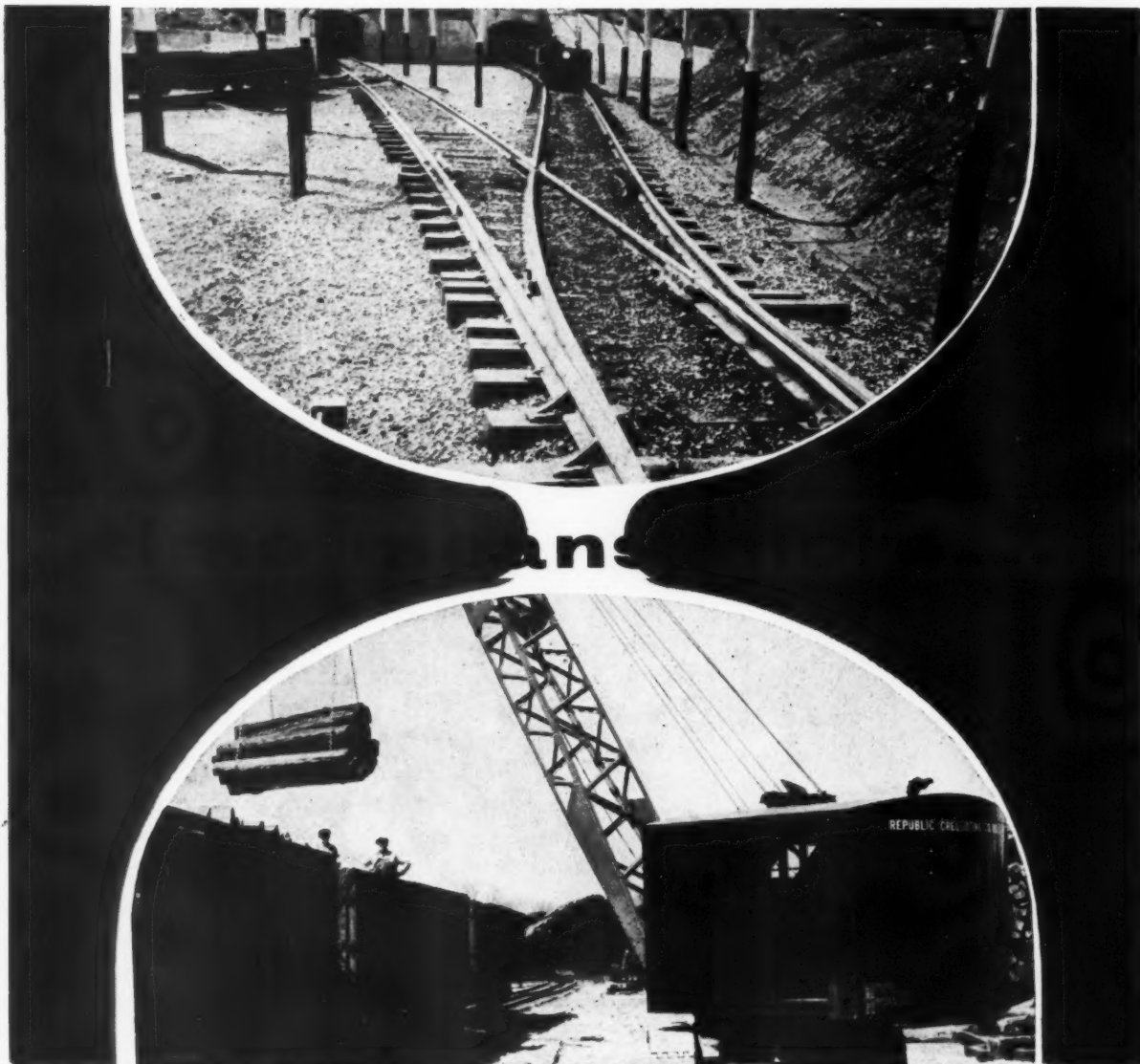
For further information, write to United States Steel Corporation, 525 William Penn Place, Room 4588, Pittsburgh 30, Pa.



## TRACKWORK

UNITED STATES STEEL CORPORATION, PITTSBURGH • TENNESSEE COAL & IRON COMPANY, FANNING, ALA.  
COLUMBIA-GONNEVA STEEL DIVISION, SAN FRANCISCO • UNITED STATES STEEL EXPORT COMPANY, NEW YORK





## with Republic Creosoted Wood

... In the language of time, Republic Pressure Creosoted Wood speaks for itself.

**From**

Railroad Ties  
Cross Arms  
Lumber

**To**

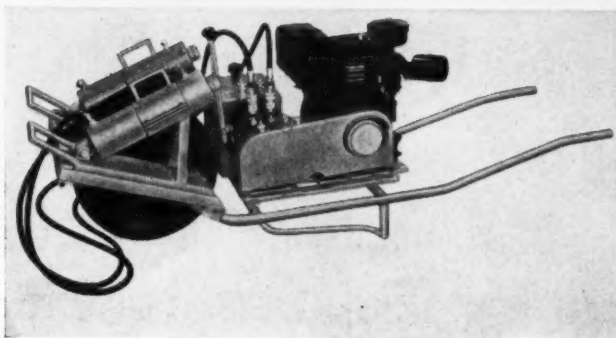
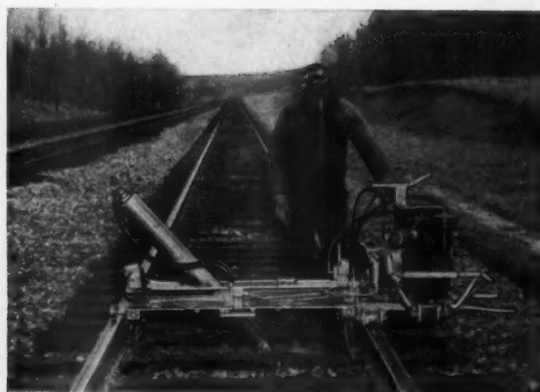
Poles  
Wood Blocks  
Piles and Anchor Logs

Dependable, resistant to insects and fungi, in acid or alkaline soils.  
Economically, a sound investment.



### REPUBLIC CREOSOTING COMPANY

MERCHANTS BANK BUILDING · INDIANAPOLIS 4, INDIANA



## RTW HYDRAULIC TRACK LINER

**More track lined per hour with  
Minimum effort and expense**

The RTW Hydraulic Track Liner—Model P-O—was devised and designed by railroad engineers thoroughly familiar with maintenance of way problems.

A light rigid self contained attachment with double flanged rollers used with the P-O Track Liner adjusts to any height or weight of rail. It supports a portable air-cooled 8 horsepower gasoline driven engine. This power plant can be used with two hydraulic rams for lining thru switches, road crossings, etc., as well as supplying power for the attachment for out-of-face lining. Its light weight and portability reduces operator fatigue.

### **Railway Trackwork Co.**

3207 KENSINGTON AVE., PHILADELPHIA 34, PA.

RAILWAY TRACK and STRUCTURES

*Upper left—Model P-O, gasoline engine powered Hydraulic Track Liner operating two hydraulic rams.*

*Upper right—Model P-O gasoline engine powered Hydraulic Track Liner operating attachment with double flanged track rollers, adjustable for any height and weight of rail.*

*Lower left—Model P-O gasoline engine powered Hydraulic Track Liner and two hydraulic rams mounted on wheelbarrow type frame that can easily be operated or transported by one man.*

*Lower right—Model H-O Hydraulic pump, light weight, hand operated, that will supply power for one (as shown) or two rams. Ideal for small gangs.*

This equipment is also available mounted on a wheelbarrow type frame that can be transported by one man for use in heavy traffic areas.

The hand operated hydraulic pump, available with either one or two hydraulic rams, is ideal for spot lining with small gangs.

The interchangeable units of these highly portable power operated Hydraulic Track Liner combinations afford a smaller force, the equipment necessary to do the work that normally would require heavier oversized machines and a large crew.

*Write for complete details today*

#### **TRACK MAINTENANCE MACHINERY**

Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders • Rail Drills • Ballast Extruders • Bit Sharpeners • Tie Nippers • Grinding Wheels • Cut-off Wheels • Track Liners

MARCH, 1955 41

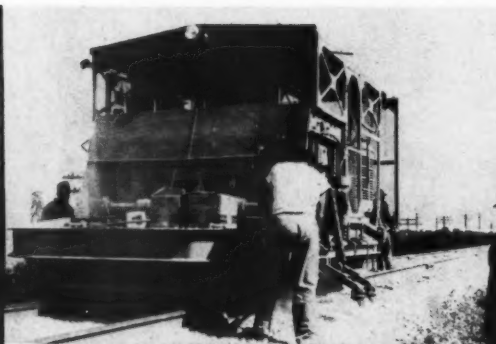


# FOR TRACK AT ITSELF

## Pullman-Standard



1 Labor saving ballast feed



2 Superior quality low cost tamping



3 Tamps 4000 ft. per day - wide for traffic



4 Tamps to A.R.E.A. specifications



5 1/3 extra savings per mile through tandem operation



6 Uniform under-rail compaction - no lost track



13 Proved in service on 30 railroads



14 Readily available spare parts and field service

## PULLMAN-STANDARD

Power Cribber... and Power Cleaner



15 Mechanized pick and shovel gang for low-cost cribbing



16 High-speed, low-cost ballast cleaning

### 30 Railroads Use Pick

The at-work scenes on these pages show Pullman-Standard Track Equipment maintaining the right-of-way on sixteen different railroads. They are representative of the thirty modern progressive and economy-minded railroads of the Great American Railway System who are purchasers and users of Pullman-Standard Track Equipment. The Pullman-Standard Track Equipment team, headed by the Power Base Power Cribber, and including the Power Cleaner, is making important contributions to these railroads by helping solve some of their maintenance problems. For example, we



# SEVEL BEST

## rdower Ballaster



10 High mechanical availability through work around.



5 Efficiently manned by two section gangs.



6 High mechanical availability through work around.



11 Runs at 25 MPH with 3 to 5 minute set-off.



12 True cross-level tamping and minimum settlement.



### se Pick Equipment

The Power Ballaster provides the uniformly tamped ballast that means long track life. Inspections reveal that this tamping is so effective that little re-modification is required. And after three, four or five years of heavy daily traffic the uniform compaction the Power Ballaster provides means a longer period between maintenance cycles. Faster, safer, smoother road beds. The Power Ballaster saved one user over \$10,000 the first year.

Your railroad can enjoy the track equipment benefits thirty Pullman-Standard customer-users are experiencing. We'll be glad to tell you how.

## Contest

When you attend the National Railway Appliances Association Exhibition in Chicago, be sure to visit the Pullman-Standard exhibit. You'll be sure to be welcomed and given an opportunity to win up to \$100.00. How? Simply by correctly identifying the railroads on which these sixteen at-work photographs were taken. Clues? Sure there are! There will be cash prizes. You can win one. Get your official entry blank at Pullman-Standard's exhibit.

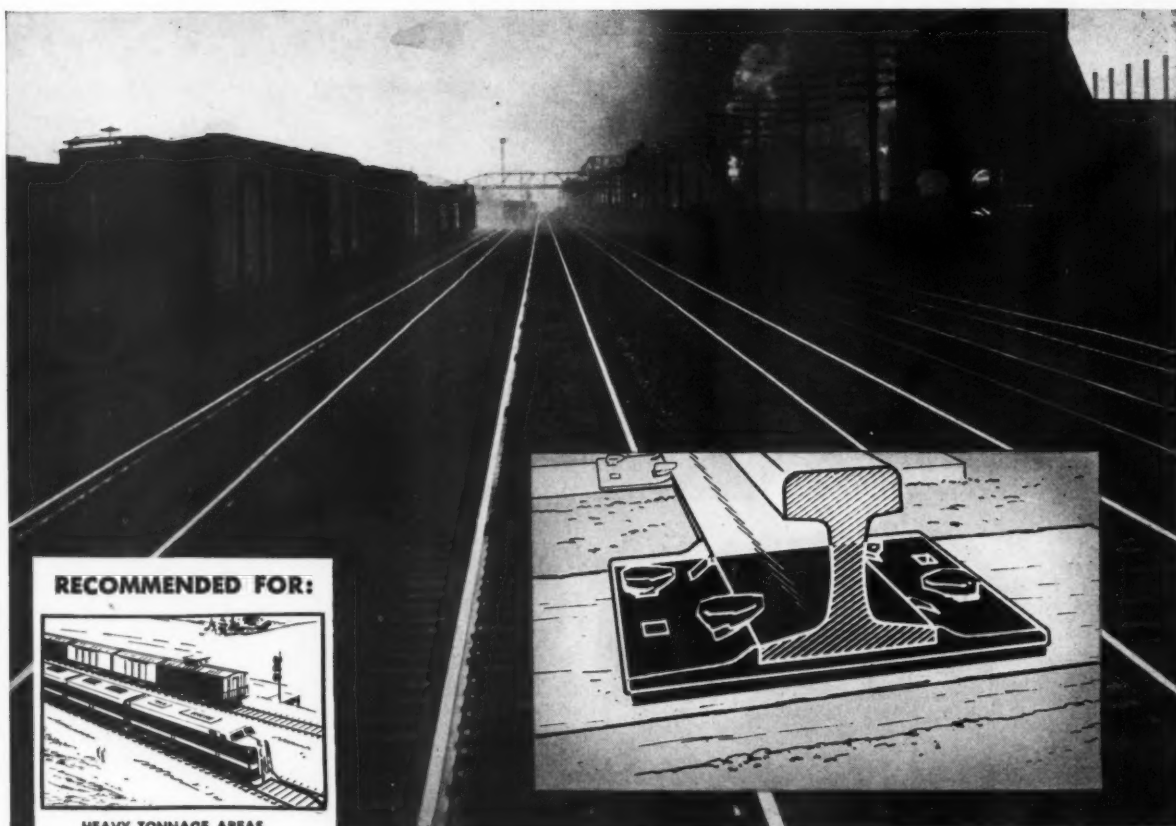
YOUR NEEDS CREATE THE PULLMAN "STANDARD"

# PULLMAN-STANDARD

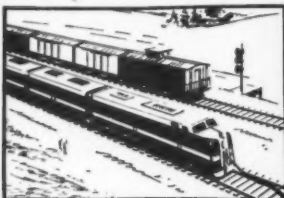
CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

73 EAST ADAMS STREET, CHICAGO 3, ILLINOIS



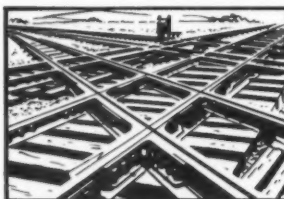
**RECOMMENDED FOR:**



**HEAVY TONNAGE AREAS**



**CURVES, TRESTLES AND BRIDGES**



**CROSSINGS, INSULATED JOINTS**



**THROUGH STATION AREAS**

*Lengthen Tie service life*

**with Johns-Manville Tie Pads**

- ... prevent tie cutting
- ... cushion track structure

BECAUSE they reduce cutting, abrasion and the action of moisture, Johns-Manville Tie Pads protect your tie investment... help cut maintenance costs. This is especially important in heavy service areas where tie replacement is a serious recurrent problem.

Designed to prolong tie service life, J-M Tie Pads reduce "pumping," track spikes stay tight longer, postponing maintenance expense for regauging and respiking. Resilient, they serve as durable protective cushions, seal out dirt and moisture, prevent abrasion and cutting. J-M Pads absorb impact shock,

help isolate the transmission of noise and vibration.

J-M Tie Pads are formulated to offer low compressibility, high recovery, low plastic flow, good resiliency and flexibility over the widest temperature ranges encountered in service. These pads are resistant to creosote, diesel and lubricating oils, brine, water and freezing and thawing.

**Available in all standard sizes,** J-M Tie Pads are furnished uncoated or with a special asphalt adhesive coating on one side. For detailed information on Tie Pads or other Johns-Manville products get in touch with your J-M Representative, or write Johns-Manville, Box 60, New York 16, N. Y.



**Johns-Manville**

**97 YEARS OF SERVICE  
TO TRANSPORTATION**

# You too, can reduce track maintenance costs with **RACINE** **PORTABLE** **TRACK** **TOOLS**

*Features that make it easy for you*

*to choose a RACINE portable Rail Saw*

- ▶ **LABOR SAVING** — One man operation, does the work of several hands. Easily moved by two men — no traffic interference.
- ▶ **EFFICIENT** — In or out of track, a Racine Saw cuts fast, smooth and accurate. Cut-off any length down to one-tenth of an inch.
- ▶ **MATERIAL SAVINGS** — Shattered and burned rail ends are eliminated. Failures from fractures caused by "nick and break" or torch methods of cropping are substantially reduced.

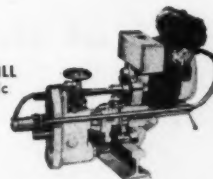


WRITE FOR NEW CATALOG showing  
Racine's complete line of Rail Tools. Ad-  
dress **RACINE HYDRAULICS & MACHIN-  
ERY, INC.**, 2038 Albert St., Racine, Wis.



**RACINE UNIT TIE TAMPER**  
Lightweight — Shock-Free  
Operation

**RACINE PORTABLE RAIL DRILL**  
Lightweight — Automatic  
Power Feed



## **RACINE**

**HYDRAULICS & MACHINERY, INC.**  
RACINE, WISCONSIN

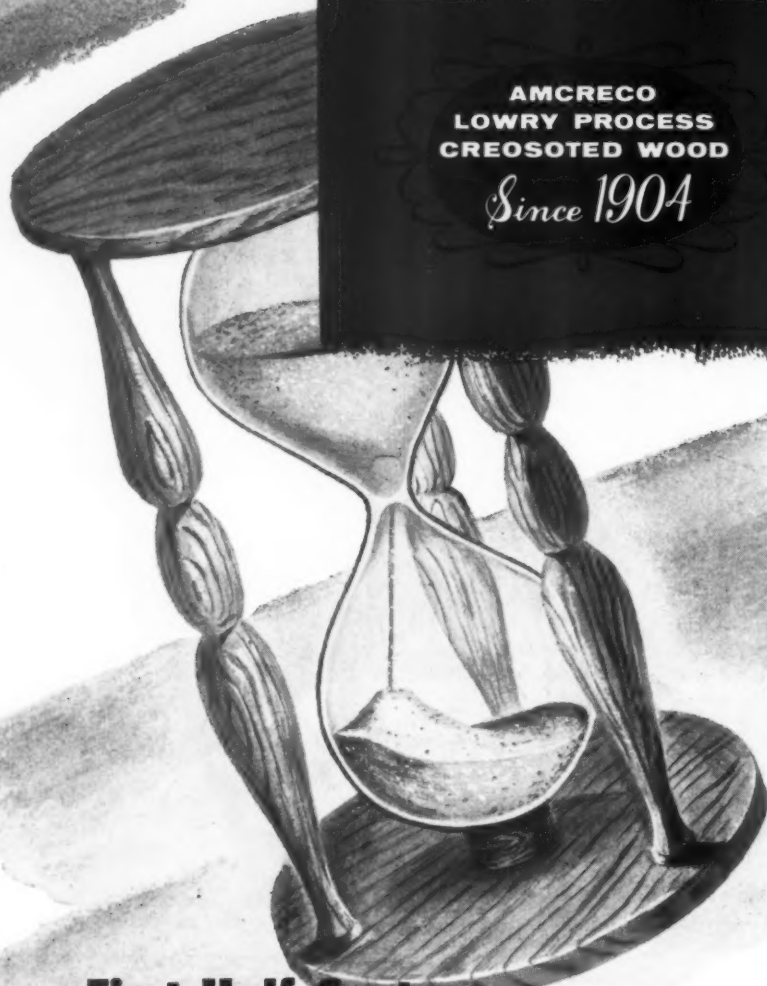


# FIFTY YEARS OF

backed by  
guarantee  
from

AMCRECO  
LOWRY PROCESS  
CREOSOTED WOOD

*Since 1904*



## **First Half Century of Modern Wood Preservation made possible by invention of the Lowry Process**

• A little over fifty years ago in a plant at Shirley, Indiana, Mr. C. B. Lowry introduced his Empty Cell Creosoting Process to the world—an event that opened the door to the modern era of wood preservation and marked the beginning of success in man's age-old struggle to find a low cost wood preservative.

The Lowry Empty Cell Process opened the door to the modern era by making it possible to impregnate wood successfully with far less creosote and in far less time than was possible with the leading wood treatment process up to that time. The Lowry Process cut the cost of creosoting approximately in half and made it economical for the expanding railroad industry and other users of construction woods to take advantage of this service.

..... Lowry conceived the idea for his process about 1902, demonstrated it in an experimental plant for the Big Four Railroad at Riverside, Ohio in 1903, used it in commercial operations for the Big Four at the Shirley plant in 1904 and applied for a patent in 1905. The subsequent granting of patent rights, established Lowry as the father of the modern era of wood preservation.

# PRACTICAL EXPERIENCE

## continuous research and development

## longer lasting wood products

## American Creosoting Company

Out of the past . . . experience for the future!



● There is no substitute for experience. And the American Creosoting Company has over fifty years' experience in wood preservation. There is no substitute for pioneering spirit. And the spirit that led Mr. C. B. Lowry to invent his Empty Cell Process and found the American Creosoting Company is still very much alive.

For instance, the American Creosoting Company has carried on a continuous program of research and development throughout the years, both in its own laboratories and through research grants to leading universities. During this period, hundreds of chemical substances and processes have been developed and tested by Amcreco and other leading organizations in an effort to find new and better treating materials.

Despite these efforts and others, Science has apparently not yet been able to find a new material that equals creosote as a low cost chemical for prolonging the service life of poles, piles, timbers and other construction woods. *And longer service life is the first and most important reason why you invest in treated woods. In general, any other feature that a preservative might offer is of secondary importance to its protective qualities.* One reason why creosote has been, and still is, the most effective preservative is the fact that it contains not just one but over one hundred toxic ingredients.

One other fact has become evident through years of research—there is still no laboratory

short cut for determining the long range value of a preservative or process. The only real test is the test of how the preservative stands up on the job over a long period of time. Amcreco creosoted materials have undergone this test for over fifty years now, and their record is proven—long, long years of service with great strength throughout the life of the wood, and high resistance to fungi, borers, insects and all natural enemies of wood.

Of course, effective creosote treatment to a large extent depends on the method of application. There must be careful scientific control at every step in the pressure treating process. During application, the preservative must be measured by precise equipment, as it is forced into the wood. Final retention, distribution and concentration must be checked continually and accurately to assure the buyer the best possible product.

This is the type of treatment that assures clean, easy to handle construction woods that will last for years and years on the job. This is the type of treatment that takes the gamble out of purchasing. This is the type of treatment that you get from Amcreco.

Also in an industry where so much depends on service, Amcreco has had the time and experience to build up the facilities necessary to give you the kind of service you require. Our plants and sales offices are strategically located for prompt domestic or export shipment.

Write our nearest office for estimates or quotations on treated Timbers, Bridge Ties, Cross Ties, Piles, Poles, Cross Arms and Conduit. We would appreciate an opportunity to quote on your needs.

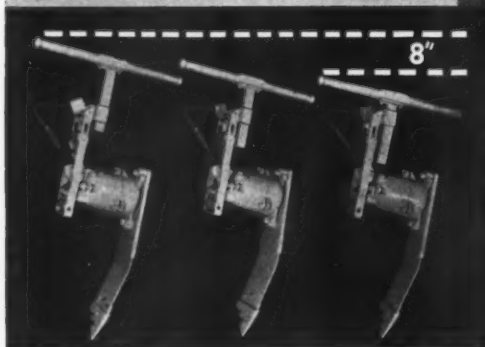
..... AMERICAN CREOSOTING COMPANY .....

Shreveport Creosoting Company  
Colonial Creosoting Company  
Federal Creosoting Company  
Indiana Creosoting Company

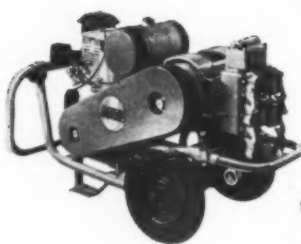


Georgia Forest Products Company  
Gulf States Creosoting Company  
Georgia Creosoting Company  
Kettle River Company

**TALL  
OR  
SMALL**



**THE NEW JACKSON  
TIE-TAMPER  
IS IDEALLY ADJUSTABLE TO ALL!**

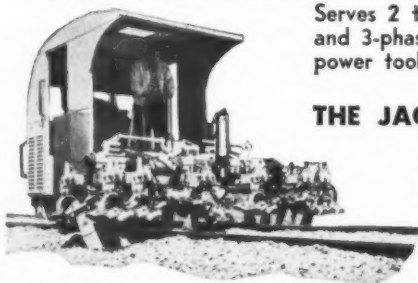


**MODEL M-22 POWER PLANT**

It takes no genius to realize that the more convenient a workman finds the tools he works with, the more he will accomplish with them. That's why we have made the handle of the JACKSON TIE TAMPER quickly adjustable to ideally suit the convenience of every worker, tall or small.

For years the long-odds favorite in the field of manually guided mechanical tampers, JACKSON TAMPERS and POWER PLANTS now, more than ever, are preferred for low-lift work with few men. And they may also be used to great advantage for major ballasting or out-of-face operations since two or more of these 4-tamper outfits may be grouped as required. Quickly interchangeable blades make them very versatile, permit them to handle every job at peak efficiency.

Serves 2 to 4 manually guided tampers. Thoroughly reliable. Generates both single and 3-phase, 120 V, 60 Cy. AC. May also be used for lighting and operating other power tools.



**THE JACKSON MULTIPLE TAMPER**

is unsurpassed for putting up track of finest uniform quality in all lifts from the highest to those no lower than the average size of ballast used. Initial cost is far less than any other on-track tamper.

*Write, wire or phone for more detailed information.*

**ELECTRIC TAMPER & EQUIPMENT CO., LUDINGTON, MICH., U.S.A.**



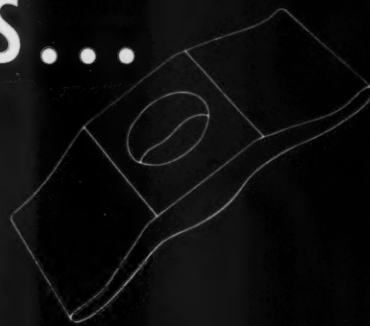
# Why is the VERONA

*Fixed Tension*

TRIFLEX  
SPRING

## shaped like this... ?

this design provides a simple means of establishing and maintaining uniform bolt tension; there is a smooth contact area between nut and spring; the spring will not turn with the nut and there is wider distribution of bolt stress to the angle bar. Careful heat treatment controls fixed tension to less than 5% variation and gives it the highest reaction of any spring washer.



THE WORLD'S FINEST  
SPRING WASHER

*Woodings-Verona*

**TOOL WORKS**

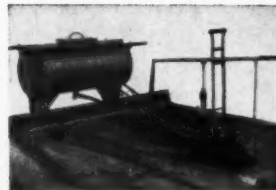
VERONA, PA. • CHICAGO, ILL.



**WOOLERY** self-propelled off-track Joint Oiler with three operators can spray joints on 1½ miles of track per hour. Uses heavy lubricants heated in 25-gallon tank and sprayed into joints under pressure, for thorough, long-lasting economical lubrication. Only 30" wide, to operate easily or turn around between double tracks.



**WOOLERY** Tie Plate Spacer quickly and accurately locates single or double shoulder plates at exact position on ties. Light in weight so that one man can easily handle it on or off track. Simple adjustment allows for changes in rail sizes. Reggidly built for long service, this machine greatly speeds the job of rail laying.



**WOOLERY** Cressote Sprayer, with 60 gallon tank capacity. Equipped with generator burner to heat cressote, and wind protection hood to safeguard operators. It applies a metered amount of cressote to each freshly added tie. Does a safer, more economical and uniform job than is possible by old fashioned hand swabbing or broom-and-pail methods.

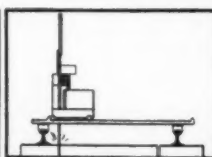
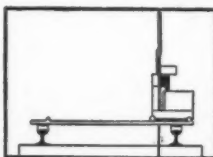
Manufacturers of Tie Cutters, Tie End Removers, Tie End Trimmers, Power Bolt Tighteners, Spike Drivers, Motor Cars, Push Cars, Tool Transporters, Weed Burners, Extinguisher Cars, Chemical Sprayers, Tie Plate Spacers, Cressote Tie Sprayers, Rail Nippers, Flangeway Cleaners, Rail Joint Oilers, Power Joint Lubricators.

## WOOLERY MAINTENANCE MACHINES for Better Track & LOWER COST!

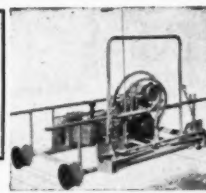
### The WOOLERY Team for Greater Savings in Tie Renewals!



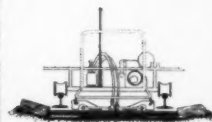
The **WOOLERY** Tie Cutter provides a proven money-saving method of removing old ties without trenching, jacking up track, or adding tops of rail-cut ties.



After tie has been cut on both sides, the operator of the **NEW WOOLERY TIE END REMOVER** removes center section in the usual manner with tie tongs and then moves the **NEW WOOLERY TIE END REMOVER** into position and



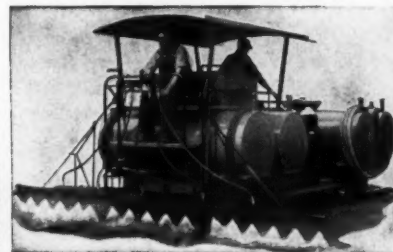
drops the double-ended hydraulic cylinder into the tie-bed. A simple turn of the valve pushes the tie-end completely clear of the rail.



**WOOLERY 300** Motor Car gives advantages of a light car, plus greater pulling power with 4 wheel drive and heavy duty performance. Carries 8 men and track tools. Can be fitted with detachable **WOOLERY** Flangeway Cleaner for winter duty.



**WOOLERY** Model PB-B Weed Burner will destroy a swath of weeds 15 feet wide in one trip or up to 25 feet with burner arms extended on second run. All three burners have electric ignition and individual controls. Only two operators required. Other **WOOLERY** Weed Burners in 1-burner and 5-burner models.



**WOOLERY** dual purpose Combination Sprayer and Weed Burner permits choice of chemical spraying (near buildings or in areas where burning is not practical) or weed burning, as desired. Chemical sprayer, covers 18-foot swath. Burning unit at opposite end covers 15 feet first trip; up to 25 feet second trip.

SINCE 1917 RAILWAY MAINTENANCE EQUIPMENT

# Woolery

## MACHINE COMPANY

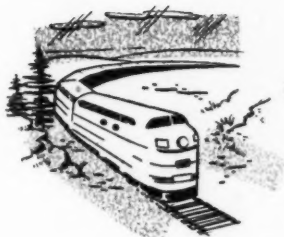
2919 COMO AVE. S. E. MINNEAPOLIS 14, MINN

Exclusive Export Representatives  
PRESSED STEEL CAR CO., NEW YORK, N. Y.

### NEW WOOLERY TRACK TOOL TRANSPORTER



This handy, lightweight push car carries tools to the job site from unloading point. Men don't have to tote tools and equipment—save time and muscles for the important job!



# ...and Railroads, too

Austin-Western Hydraulic Crane has *Versatility Where It Really Counts.*

Full hydraulic boom action—including swing, raising and lowering, crowd and hoist—even while under load—adds up to the only true "live" boom, and when mounted on its sturdy, short-coupled All-Wheel Steer chassis, you have the most maneuverable piece of materials handling equipment of its kind, indoors as well as outdoors.

Without a doubt, it's the tremendous work capacity of the A-W Hydraulic Crane—the standout performance—that is proving every day on hundreds of jobs—that the A-W Hydraulic Crane is your answer to today's low cost requirements.

And, of course, it's the modern way to do it.



HOOK



ORANGE PEEL



CLAMSHELL



MAGNET



See us in Booth N-20, N-21 at the N.R.A.A. Exhibition March 14-17, Chicago Coliseum.

## AUSTIN-WESTERN COMPANY

Construction Equipment Division • Baldwin-Lima-Hamilton Corporation

AURORA, ILLINOIS, U. S. A.

Power Graders • Motor Sweepers

Road Rollers • Hydraulic Cranes

### AUSTIN-WESTERN COMPANY

642 Farnsworth Avenue, Aurora, Illinois

Please send complete information and literature on the Austin-Western Hydraulic Crane.

Name

Title

Company

Street

City  Zone  State



# RAILWAY

## TRACK *and* STRUCTURES

Subject:  
  
Dear  
Readers:

### Convention Blues

I suppose we all have our secret ambitions which we cherish from year to year without much hope that we'll ever be able to realize them. The nature of these secret ambitions varies between different people, depending on their inclinations and status in life. With this reporter—and I am sure the view is shared by countless other magazine editors—there is a sort of wistful hope that he'll someday be able to attend a railroad convention just as an interested observer rather than a harried editor, burdened with duties.

Let's first take a look at what we would imagine to be the typical procedure of a railroad man when attending a convention. Quite probably no advance preparations are necessary except to get travel and hotel accommodations. On arrival he will probably, after registering, pick up a program and look it over to see what reports or addresses there might be of special interest to him. When he has done this he will doubtless find that there will be time left to do a thorough job of looking over the exhibits, stopping here and there to discuss particular machines or products with supply company representatives. Then he will also want to allow time to talk shop and exchange views with colleagues from other railroads.

This is all fine! That's the way to get the most out of a convention. You pick up a lot of useful information, and at the same time experience a great deal of quiet pleasure in doing so because you are mingling with friends and acquaintances with common interests.

When he considers the contrasting situation that faces him when planning for a convention, the editor can get downright envious. He starts his planning weeks in advance because very likely he has to prepare a special issue for distribution at the meeting, and woe to him if the copies are late in arriving. Then he has to make detailed plans for covering the proceedings in the first available issue. In doing this he must cover *all* reports and addresses, he must know what pertinent questions were raised in discussions from the floor, and he must do his stint in taking photographs, always keeping an eye on the inevitable deadlines. If he is lucky enough to get to bed in time for a good night's rest he may fail to sleep well due to worry over whether he hasn't overlooked something important. Between times he hopes to meet as many people as he can and to sneak out to the Coliseum for a look at the exhibits. Likely as not, when the whole thing is over, he will feel like he's been through a wringer.

This probably sounds like complaining, but actually the hardships are exaggerated to bring out two contrasting ways of "enjoying" conventions. To be frank about it there is plenty of satisfaction in doing a good job of covering a convention editorially. We will go on cherishing the hope that someday we can attend a convention without being burdened with editorial responsibilities. However, should this happy day ever come, we strongly suspect there will be an uneasy feeling as if something important were lacking from the event. Maybe it is just as well that we have no hope of realizing our secret ambition.

MHD

# THE RACOR STUD

(Patented)

*deserves your consideration because...*

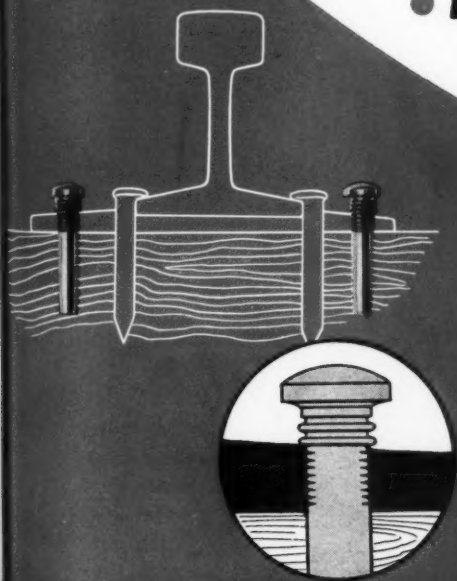
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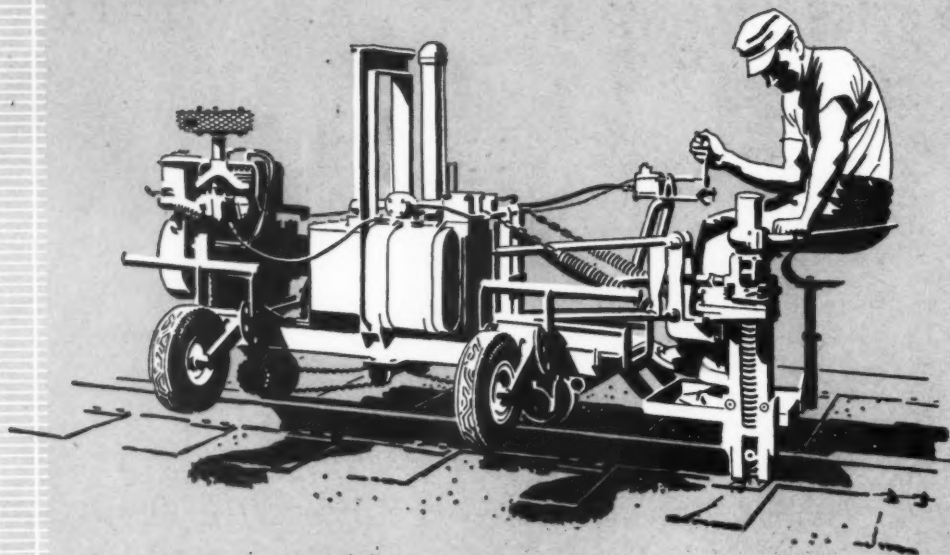
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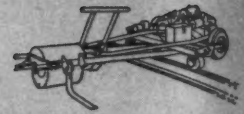
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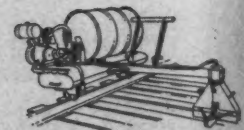
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**RAILWAY**

# TRACK *and* STRUCTURES

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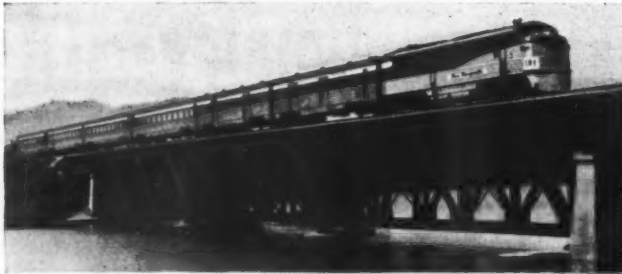
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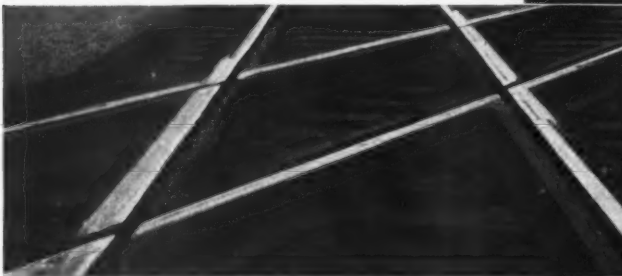
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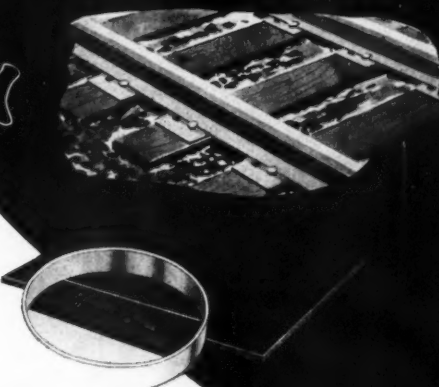
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## Supervisors' Personnel Problems



### **A Guest Editorial**

**By G. W. MILLER**

**President, AREA**

No individual can be successful in accomplishing any worth-while objective without the voluntary cooperation of his associates. The quality and quantity of such cooperation is determined more than anything else by the "personality factor" of the supervisor or other person striving for it. In recent years there has been a growing appreciation of the importance of this factor both between management and employees, and among the employees themselves. The "bull of the woods" supervisor is a man of the past.

The advent of automation in the field of track and structures maintenance is an outstanding example of the way technological advancement affects both the job and the men doing it. The supervisor is not only faced with the technical problems presented by the new machines but also the non-technical problems of labor morale.

Preventive maintenance is the key to economical railroad operation, and every available dollar must be spent to the best advantage. To this end large sums of money are spent each year in purchasing new roadway equipment to promote maximum efficiency. Is this equipment being used to the best advantage?

When a supervisor introduces a new machine or procedure for doing a specific job

he expects and is usually faced with some resistance to the change on the part of the worker. However, this resistance can usually be overcome by getting the people involved to participate actively in making the change. By participation I mean instilling in them a feeling that their knowledge, skill and sense of responsibility are essential for the better accomplishment of the job. Remember that they are often specialists in their own field and are frequently able to spot the practical difficulties which must frequently be ironed out before any new procedure is put into effect. People seldom resist technical change as such, and much of the resistance that does occur is unnecessary.

In many instances the resistance encountered is the direct result of a poor "explanation." Supervisors must avoid generating the feeling that their ideas are too complex to be comprehended. The faculty of reducing apparently complicated situations to their basic, essential elements must be developed if the introduction of new machines and methods is to be successful. For this reason it is essential that senior supervisors know how the change is being handled. This can be done by asking discerning questions of those supervisors directly responsible, by listening closely for signs of employee reaction, and in some instances by taking an active part in the operation.

Solving the problems resulting from automating the maintenance forces is, of course, but part of a supervisor's responsibility. A smooth transition from the use of human energy to mechanical energy should always be striven for, and if accomplished will indicate the existence of good personnel relations between the supervisor and his staff. The communication of creative ideas and maintenance of harmony between people with different points of view should always be high on the list of "musts" for supervisors at all levels.



# PROGRAM

## Fifty-Fourth Annual Meeting American Railway Engineering Association

March 15-17, 1955

Palmer House, Chicago

TUESDAY, MARCH 15

### Morning Session—9:45 to 12:00 Grand Ballroom

Address of G. W. Miller, president  
Report of Neal D. Howard, secretary  
Report of A. B. Hillman, treasurer  
Greetings from the Signal Section, AAR, T. W. Hays, chairman  
Greetings from the Electrical Section, AAR, R. I. Fort, chairman  
Address—"Railroading As a Challenge," by R. G. May, vice-president, Operations and Maintenance Department, AAR  
Address—"Railroad Interests in Atomic Energy," by Ray McBrien, engineer of standards and research, Denver & Rio Grande Western and member AAR Committee on Atomic Energy  
Address—"Railroad Research Centers on New Horizons," by G. M. Magee, director of engineering research, Engineering Division, AAR

### Afternoon Session—2:00 to 4:45 Grand Ballroom

Reports of Committees on  
Yards and Terminals  
Address—"Handling of Roller-Bearing Cars by Gravity," by A. V. Dsburg, transportation engineer, General Railway Signal Company  
Economics of Railway Location and Operation  
Waterways and Harbors  
Address—"Fair Play in Navigational Clearances for Bridges," by Paul F. Royster, assistant to under-secretary of commerce for transportation  
Highways  
Contract Forms  
Records and Accounts

WEDNESDAY, MARCH 16

### Morning Session—9:00 to 12:00

Reports of Committees on  
Cooperative Relations with Universities  
Water, Oil and Sanitation Services  
Wood Bridges and Trestles  
Clearances  
Impact and Bridge Stresses  
Address—"Fillmore Tests of Static and Dynamic Effects in a Bridge Consisting of Beam Spans Supported on Concrete-Filled Pipe-Pile Piers," by R. T. Blewitt, bridge engineer, New York, Chicago & St. Louis  
Masonry  
Iron and Steel Structures

### Association Luncheon—12 Noon Grand Ballroom

Announcement of results of election of officers

Address—"The Railroad Industry," by N. R. Crump, vice-president, Canadian Pacific

### Afternoon Session—2:30 to 5:00 Red Lacquer Room

Reports of Committees on  
Maintenance of Way Work Equipment  
Economics of Railway Labor  
Address—"The Engineer's Responsibility for the Future," by W. W. Hay, associate professor of railway civil engineering, University of Illinois  
Roadway and Ballast  
Address—"Roadbed Stabilization," by J. E. Griffith, assistant chief engineer maintenance of way and structures, Southern  
Waterproofing  
Wood Preservation  
Buildings

THURSDAY, MARCH 17

### Morning Session—9:00 to 12:30

Reports of Committees on  
Ties  
Address—"Progress in Tie Research Program," by G. M. Magee, director of engineering research, Engineering Division, AAR  
Track  
Address—"Maintenance of Railroad Crossings at Grade," by V. C. Hanna, chief engineer, Terminal Railroad Association of St. Louis

Special Committee on Continuous Welded Rail and Rail  
Panel discussion on "Continuous Welded Rail and 78-ft Rail"

Closing Business  
Installation of Officers  
Adjournment

### COMMITTEE MEETINGS

Luncheons or meetings of individual committees are scheduled to be held during the convention as follows:

#### Monday, March 14

Highways—meeting and luncheon, 9:30 a.m., Crystal room  
Wood Preservation (subcommittee 9)—meeting, 8:00 p.m., Private Dining Room 3  
Economics of Railway Location and Operation (Subcommittee 3)—meeting, 9:30 a.m., Room 3

#### Tuesday

Roadway and Ballast—luncheon, 12:15 p.m., Room 8  
Ties—meeting, 2:00 p.m., Room 4  
Track (subcommittee chairmen only)—luncheon, 12:15 p.m., Room 1  
Records and Accounts—luncheon and meeting, 12:15 p.m., Room 5  
Water, Oil and Sanitation Services—luncheon and meeting, 12:15 p.m., Room 18  
Yards and Terminals—luncheon, 12:15 p.m., Rooms 15 & 16

Economics of Railway Location and Operation—luncheon, 12:15 p.m., Room 796  
Contract Forms—luncheon, 12:15 p.m., Room 6  
Economics of Railway Labor—luncheon, 12:15 p.m., Room 9  
Waterways and Harbors—meeting, 9:00 a.m., Room 5  
Clearances—luncheon, 12:15 p.m., Room 4  
Continuous Welded Rail—luncheon, 12:15 p.m., Room 7

#### Wednesday

Buildings—meeting, 2:45 p.m., Room 9  
Economics of Railway Location and Operation (Subcommittee 3)—meeting, 2:00 p.m., Room 3  
Wood Preservation—meeting, 2:45 p.m., Room 6  
Cooperative Relations with Universities—meeting, 9:45 a.m., Room 9

Note—All rooms from 1 through 13 and the Crystal room are located on the 3rd floor; Rooms 14 through 18 are located on the Club floor, midway between the 4th and 5th floors; Room 796 is on the 7th floor.

# Cycle Maintenance . . .

## What They're Saying About It

Increasing interest is being shown by maintenance-of-way officers in the practice of performing out-of-face track work, such as tie renewals and surfacing, on the basis of predetermined cycles. For example, a number of roads have adopted the policy of renewing ties on a cycle of five or more years, that is, removing all ties out of face that will not last until the next renewal program at the end of the cyclical period.

Opinion is by no means unanimous as to the wisdom of this policy. One school of thought regards it with unqualified favor, but in other

quarters it is viewed with varying degrees of doubt or skepticism.

Primarily to bring out the reasoning behind these various shades of opinion *Railway Track and Structures* asked a number of top-ranking maintenance officers to state their views on these questions:

"What is your opinion of the cycle method of track maintenance? What are its advantages? Disadvantages? Is this practice conducive to the most effective use of machines? Why?"

The answers are presented on this and the following pages.—EDITOR.

## Superiority of Method Not Proved . . .

**Says R. W. Putnam**

Engineer Maintenance of Way and Structures, Southern Pacific

Having had experience only in a limited way with the so-called cycle method, any remarks which I might make regarding it are an opinion only. However, they are governed by experiences during many years of track maintenance.

I doubt that any railroad has actually proved that in all respects the cycle method is best. The overall result must, of course, be the governing factor, and this consists of the long-range economy, and not merely economy for a few seasons, in a few places. Aside from the cost factor, any method must produce satisfactory riding qualities for high-speed passenger and freight traffic.

I do not believe that a predetermined cycle of maintenance will take care of the many varied conditions existing in connection with proper maintenance. It is my opinion that the particular need for

maintenance should govern the time when it should be done, and the extent to which it should be done. The need depends on conditions actually existing, and the degree of maintenance desired. These things are, in turn, dependent on the type of subgrade, drainage conditions, weather and climate, density of traffic, alinement, and the weight and condition of the rail.

It is not practical for anyone to predetermine in what years just when a stretch of track will need resurfacing and reconditioning. There are so many different conditions existing which enter into the causes of rough track, or unsatisfactory riding track, or even unsafe track, that one stretch of track may go many years with little or nothing done, except tie renewals and spot-tieing, while another stretch of track may require resurfacing every few years, and sometimes every year.

When applied in connection with tie renewals the cycle method will no doubt cut the unit cost for making the renewals, but I believe

there is an off-setting accumulative expense that counteracts this apparent saving. First, there is no question but that more ties are used in track than are actually necessary.

For example, if ties are renewed on a 5-year cycle there will be many ties taken out that would have 4 or 5 years of service left in them for that location. Second, in performing fast, heavy tie renewals the running surface of the track is more or less disturbed, and therefore a resurfacing job becomes necessary if proper riding qualities are desired; perhaps this resurfacing would not have to be done otherwise. Physical conditions are not the same throughout a railroad, nor are they the same even on any one section, particularly in mountainous territory, and therefore the class of work required must be determined only by inspection.

It is my opinion that work should not be made, or planned, merely to make use of machinery, but that the use of machinery should be planned to do the work that has to be done; in other words, we should not make jobs for machines, but

## Quotations Show Varied Opinions . . .

● "It is my opinion that work should not be made, or planned, merely to make use of machinery, but that the use of machinery should be planned to do the work that has to be done . . ."—R. W. Putnam

● "Cycle maintenance, when properly controlled, will reduce the amount of spot work required, improve the standard of maintenance, and make feasible readjustments that produce definite economies."—A. B. Chaney

● "Complete dependence on the cycle method, and allowing for only

small forces to take care of miscellaneous work, may allow development of excessive track irregularities at those locations which are more difficult to maintain."—J. C. Jacobs

● "Where this procedure (cycle maintenance) is followed, large economies have been realized in both labor and materials."—E. L. Anderson

● "The advantages of 'cycle' maintenance can only be fully realized by recognizing the principle, formalizing it, and applying it."—J. P. Hiltz

make machines for jobs. When a long stretch of track requires surfacing we should make use of available machinery in performing the job.

No railroad lays rail on a cycle

basis; rail is laid only when required, either in replacing worn-out rail or to prepare for heavier, or faster traffic. The same should be true of ordinary track maintenance in connection with tie re-

newals, ballast renewal, and surfacing, that is, if maximum economy and satisfaction is to be had.

A three or four-man section gang can ordinarily renew ties currently and keep track spotted up and in satisfactory riding condition, and attend to the inspection and replacement of failed materials, and do so-called preventive maintenance that extends the time when it is necessary to have a gang come in and do out-of-face work. A good section foreman with only a few men, using modern track tools, including small tamping machines, can keep up a piece of track 8 to 10 miles long almost indefinitely but if and when it does become necessary to overhaul that particular section, or parts of it, then of course an extra gang with power tools should be employed.

While the cycle method of track maintenance might be conducive to the efficient use of machines, it could be more expensive over a period of years than if the same machinery were used at particular locations only when the work is actually required.

## Use It Only to a Small Degree . . .

**Says Edward Wise, Jr.**

Engineer Maintenance of Way  
Louisville & Nashville

We have given no careful consideration to the cycle method of track maintenance as we understand it, such as making tie renewals on a 5-year basis, completely reballasting track, etc.

Our plan has been to maintain our tracks so as to have an entire stretch of main track or branch-line track in as safe and smooth-riding condition as can be obtained with forces available, taking into

consideration the tonnage handled over the tracks, speed, etc. By using reformed joint bars, building up rail ends and doing a certain amount of smoothing, we are able to have the entire length of track ride smoothly, rather than having stretches of it in first-class shape while others do not come up to the same standard.

In some respects, to a small degree, we follow the cycle method of track maintenance. Where we propose to lay new rail we endeavor to make tie renewals and surface the track prior to laying the

rail, and tie replacements at that time are made on the basis that no ties will have to be inserted until the track has to be surfaced again. In surfacing track we limit the raise to 2 in, do not strip the track of ballast unless absolutely necessary, and the shoulder ballast is cleaned only to the extent this can be done with scarifiers. Ties are inspected after removal and are reused in branch lines or yard tracks, if found to be good enough. Of course this method depends upon the traffic handled.

We have found this method of track maintenance gives very satisfactory results and good use of our work equipment.

## Makes for Smooth Track . . .

**Says G. A. Phillips**

Chief Engineer  
Delaware, Lackawanna & Western

The Lackawanna has been renewing ties on the cycle basis for many years. It all makes for smooth track, and the tie record for this railroad shows up very satisfactorily.

All heavy work on stone-ballasted

tracks is performed under the "detour" method, i.e., the maintenance-of-way department has exclusive use of the track for approximately six hours daily during the work week. In renewing ties, the track is given approximately a 4-in raise and tamped with a Jackson vibratory tamper, and all ties are removed that will not be satisfactory during the cycle adopted by this

railroad. If soft ties are left in the track, a rough ride results. In one or two years a running surface is given the track with a Matisa tamping machine, with no tie renewals, and possibly three years later it will again be given a running surface with the same type of machine.

The tie-renewal cycle in use on this railroad enables us to handle all of the heavy tying with one gang per season and one machinery setup. If the cycle were reduced



one-half, it would mean another complete setup of men and machinery, involving double the expense in labor and investment in machinery, besides requiring two detours for trains during the day rather than one, which would, of

course, increase the delays. Many of the secondhand ties removed are reused in yard tracks and sidings where they will last many years under light traffic.

The cycle method has proven itself to us as indicated by the riding

qualities of the track, tie-renewal records, and our maintenance-of-way ratio of expenses to earnings, exclusive of depreciation and retirements, as well as the ratio of the total expense of track accounts by ICC classification to gross revenue.

## **Adaptable to Many Operations . . .**

**Says A. B. Chaney**

Assistant Chief Engineer System—  
Maintenance, Missouri Pacific Lines

The cycle method of track maintenance offers advantages that justify extending its application to many maintenance operations which have not previously been handled in that manner.

Rail laying has always been on a cycle basis, and most roads consider out-of-face surfacing and re-ballasting a cycle operation. This has naturally led to the cycle method being applied to tie renewals. Vegetation control, cleaning up of the right of way, roadbed restoration, building up rail ends, tightening bolts, oiling joints and lining curves are other operations that are usually performed at intervals that place them on a cycle basis.

Spot work to correct irregularities in line and surface, inspecting and repairing frogs and switches, repairing fences, ditching, scaling bluffs, patrolling, stabilizing roadbed, and the usual housekeeping

duties of track forces—these are typical tasks that are best accomplished by special or small gangs without regard to cycle or specific time intervals.

Cycle methods are best adapted to larger maintenance operations on the heavier-traffic lines where train interference seriously reduces the amount of productive work. I doubt whether the cycle method of surfacing and tie renewals could be justified on light-traffic branch lines. Such subdivisions are economically and adequately maintained by small gangs, especially where heavy rail has been laid and tie and ballast conditions are satisfactory.

The principal advantage in using the cycle method is that greater utilization of power equipment and tools is realized by concentrating their use in a few specialized gangs. Larger outlays would be necessary to equip all gangs with power tools. Cycle maintenance, when properly controlled, will reduce the amount of spot work required, improve the standard of maintenance, and make

feasible readjustments that produce definite economies.

There is, however, a tendency in cycle operations to replace some materials that still have useful life, and for this reason tight supervision and competent programming is a "must" if this is to be avoided. Cycle operations require careful inspection and distribution of materials in advance if mistakes are to be avoided.

Special gangs can be mechanized and organized to produce satisfactory work at low unit costs that would not be possible with methods used in past years. Special gangs are adapted to out-of-face cycle operations, but are less efficient on routine assignments, such as spot work and other day-to-day running or routine repairs.

With present-day track materials, the most important factor in extending their economic life is the maintenance of good line and surface, and the most economical method of achieving this is by applying cycle methods to those operations where mechanization of special gangs brings about lower unit costs with equal or better quality of work.

## **Is Basic Principle of Maintenance . . .**

**Says J. P. Hiltz, Jr.**

General Manager  
Delaware & Hudson\*

Regardless of whether or not we formalize the principle by using the term "cycle," we must recognize that true track maintenance involves the periodic performance of certain types of work. Most of us readily accept that fact that a building must be painted at certain intervals if it is to be properly maintained without deterioration; or that a machine must be lubricated periodically, or unnecessary wear of the parts will occur. Why should it be difficult to recognize that the renewal of rail, re-

newal of splice bars, tie renewals, surfacing, ballast cleaning, etc., must be conducted on a pre-determined, periodic basis consistent with traffic, finances, and other conditions in order to prevent the wasteful deterioration and wear of the track structure.

If cycles are established logically in accordance with traffic, finances, the standards of maintenance desired, and other influencing factors, the maintenance engineer can at all times be in position to advise his management what is required to maintain his property. If financial conditions make it necessary to lengthen the cycle, he is then in a position to advise his management of the standard of maintenance which can be expected.

Cycles logically lead to schedules for the performance of maintenance work. Schedules insure that the various types of work will be done in logical and economical sequence. Schedules make possible the maximum use of machinery. Schedules give opportunity to prepare for operations and set up the labor, material, and services required to conduct them. Schedules are a logical and effective approach to performance standards.

Unquestionably most maintenance today is being conducted on a "cycle" basis without recognition of the fact. The advantages of "cycle" maintenance can only be fully realized by recognizing the principle, formalizing it, and applying it.

There can be no disadvantages to properly applied "cycle" maintenance as a cycle or a period is a

\* At the time of preparing this article, Mr. Hiltz was chief engineer M/W of the New York Central System. He became a general manager of the D&H on March 1.

basic principle of maintenance. If "cycles" are improperly set or are not made flexible enough to allow

for adjustment to changing traffic, financial or other conditions, the disadvantages are apparent. This is

not a weakness of the principle but rather a weakness in the application of the principle.

## **Has Advantages Where Applicable . . .**

**Says J. C. Jacobs**

Engineer Maintenance of Way, Illinois Central

This plan is not entirely new. Much track maintenance has been done heretofore on what might be considered a cycle basis, although not to such an extent as is now being practiced on some railroads. If we are to consider the method now under discussion as being one in which relatively long sections of track are given heavy maintenance, such as rail, tie, and ballast renewals, at uniform time intervals, an evaluation of such a system must be predicated on the assumption that the plan is applicable and well suited to the territory where applied. It must be recognized that there are districts where, because of operating or physical characteristics, the complete and inflexible application of such a plan would not produce the desired results, i.e., satisfactory and economical maintenance.

This policy has not been adopted on the Illinois Central to the same

extent as on some other railroads; however, we feel that, where the plan is applicable, it has definite advantages such as the following:

(1) It should allow more comprehensive programming of work and make possible a closer adherence to the predetermined program.

(2) It should be conducive to the most effective use of machines and distribution of labor because of the accurate programming which is possible with this method. Under the cycle method, out-of-face maintenance is likely to be performed on longer sections than is the case when work is done at irregular time intervals, and the longer the sections of continuous out-of-face operation the greater the efficiency with which machines can be used.

(3) It should be of aid in the control of maintenance expenditures.

Among the possible disadvantages are these:

(1) Tie renewals on any fixed time interval must of necessity result in the removal of many ties having useful life remaining but

which cannot be economically installed in other tracks. If this is not done, or unless the interval is a very short one, the end of the cycle will find many ties overdue for removal, resulting in an unsatisfactory track condition.

(2) If the plan is strictly applied in connection with rail renewals, certainly some rail will be well overdue for removal at the end of the cycle, while it is likely that some could have remained in track considerably longer.

(3) Lack of uniformity in characteristics of roadbed, gradients, alignment and other conditions often makes it necessary to give greater attention to certain portions of a district than to others if a uniform riding condition is to be maintained. This is a particularly important consideration where high-speed freight and passenger trains are operated. Complete dependence on the cycle method, and allowing for only small forces to take care of miscellaneous work, may allow development of excessive track irregularities at those locations which are more difficult to maintain.

## **Expanding Use from Year to Year . . .**

**Says E. L. Anderson**

Chief Engineer, Frisco

The cycle, or periodic, method of track maintenance is being expanded on our line from year to year. Our first attempt to carry on this type of maintenance occurred eight years ago. Since that time it has spread out pretty largely to embrace the entire system.

This type of maintenance requires extensive planning. It also requires that the track when such a program is started, must be up to a rather high standard of maintenance for its class, or must be brought up to such a standard before the cycle or periodic method can be fully inaugurated. The period between such cycles is predicated on several factors such as the stability of the roadbed, the kind of ballast, the type of track structure, the maximum speeds allowed and the tonnage carried. When

these factors are in proper relation, work programs can be planned and then carried out with a great deal more economy, particularly from a labor standpoint, than non-periodic or cycle maintenance.

Where this procedure is followed large economies have been realized in both labor and materials. I firmly believe that the ensuing psychological effect among track men is of inestimable value. Such men have always been proud of their accomplishments and of being permitted to do a good job which produces beneficial results that can be seen. Among a few of the advantages to be counted are the following:

(1) Ability to follow a program or plan.

(2) Mechanization to the fullest extent.

(3) Longer life from materials.

(4) A consistently better riding track structure.

As to the disadvantages, there is

only one that I have found of any importance and that is the possibility of not procuring at its initial location, the full service life from a crosstie. In practicing the cycle method ties are quite often taken out of main track that have several years of life remaining, and are reinserted in unimportant tracks. Necessarily this leads to labor expense that may not be justified if careful selection is not procured in releasing ties. Hence, the duration of the cycles should be such as to keep this situation to the minimum.

Cycle or periodic maintenance necessarily should be carried on by gangs of sufficient size to permit the use of mechanized and labor-saving equipment. This system lends itself to the use of larger gangs and fewer small gangs than non-cyclical maintenance. The result is a minimum of overhead expense in addition to greater mechanization. Moreover, less interference occurs with train operation because of work orders.

## Track Lining the Easy Way . . .

# Machines Take Over

● One of the most significant developments in equipment for track-maintenance work during recent years has been the introduction of machines for lining track.

Track lining has always been one of the most difficult, expensive and time-consuming of all tasks in maintenance work, particularly in more recent years as the track structure has become increasingly heavy. These days it is not at all uncommon to use as many as 20 or more men to line heavy track where the ballast section is full.

Track-lining machines have made it possible to perform this same job with an even greater degree of accuracy and with as few as two men. These machines are

capable of lining a mile or more of track per day and have the added advantage of a constant output which is not affected by the fatigue and temperament that so often plague a gang of men towards the end of a hard day.

The four pieces of track-lining equipment which have been developed so far are described briefly on these pages. They are: The Railway Track-work Track Liner; the Nordberg Trakliner; the American Railway Curvelining Tru-Liner; and the Railway Maintenance Corporation LineMaster. The first two and the latter of these machines are already in production, while the third has just completed development tests.



### NORDBERG TRAKLINER

This machine has two lining shoes which are adjustable longitudinally with the track so that they can be positioned in adjacent cribs or with an empty crib between them. Clamps at ends of machine grip both rails underneath the heads. With machine thus fastened to rails the two lining

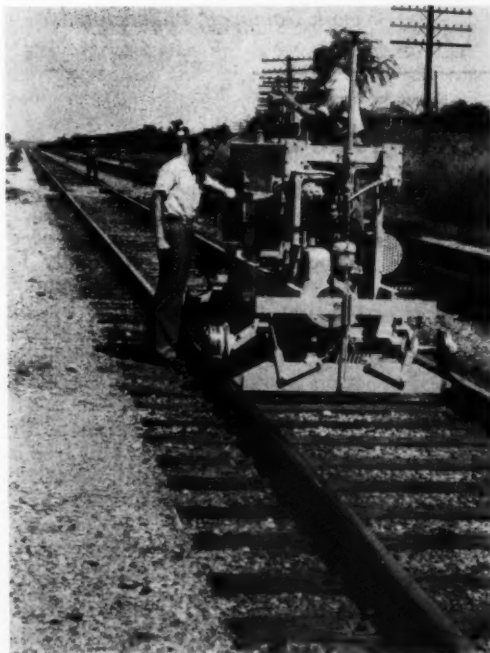
shoes, which have specially designed cleats welded to their bottoms, are dropped into cribs and forced into ballast by pressure exerted through a vertically mounted hydraulic ram. Control valve is said to permit downward pressure to be adjusted so that it is sufficient only to lift the weight of the track without actually raising it from the bed. Pres-

sure for lining track is exerted by hydraulic rams on each end of each lining shoe, which bear laterally against base of rail.

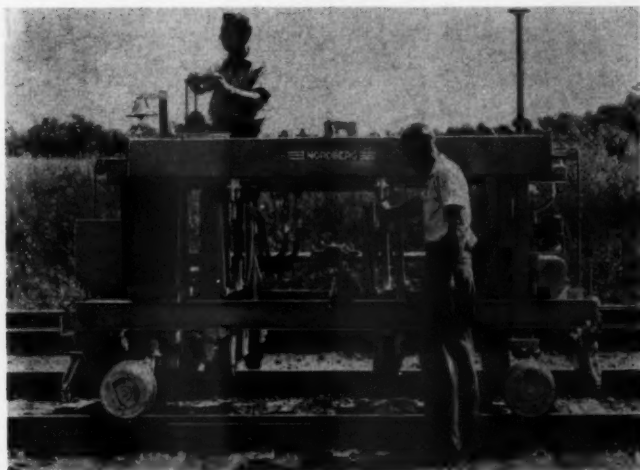
Split running wheels permit the flange halves of the two wheels at rail being sighted to be moved away from rail head and locked in position.

Power is provided by 13.8-hp Wisconsin two-cylinder gasoline engine. Machine can travel at speeds up to 20 mph. Four double-flanged transverse rollers are used in conjunction with set-off rails furnished with machine.

Crew consists of operator and helper.—Nordberg Manufacturing Company, Milwaukee, Wis.

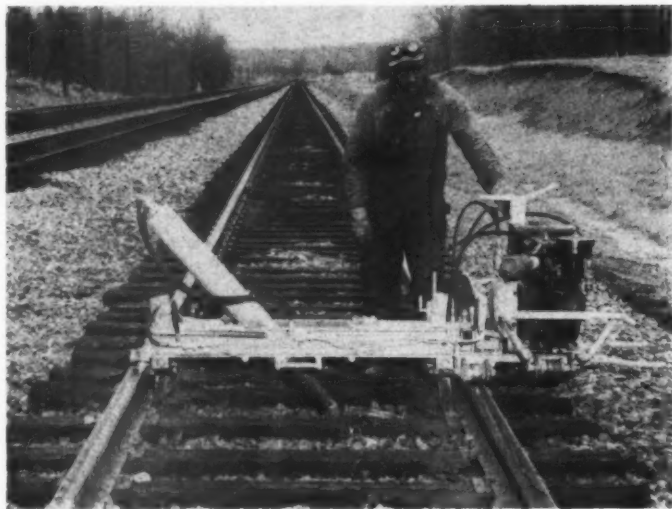


**SNAP-ON** outside flanges attached to wheels on one side of Trakliner form double-flanged wheels (see left) which keep machine on rails when lining. View below shows lining shoes.





## Track Lining the Easy Way...



### RTW TRACK LINER

Several refinements of the original Railway Track-work Model P-O Track Liner are now available. This model (not shown in pictures) consists of two hand-held hydraulic rams and a portable power plant mounted on two double-flanged rollers.

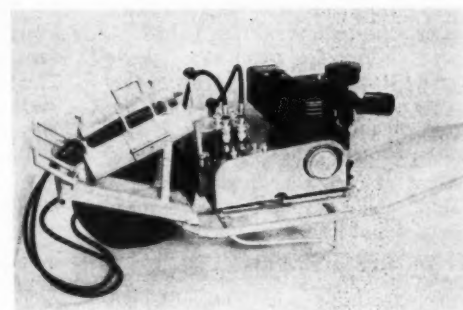
One of the refinements consists of an attachment (see photograph above) for use with the same power plant as provided with the Model P-O Track Liner. The attachment is comprised of a frame supporting a hydraulic cylinder. In operation the device is clamped to the rail by means of two L-shaped locking feet which fit under the

**ABOVE**—Attachment for Model P-O Track Liner has hydraulic cylinder which is tipped in direction of movement.

**RIGHT**—Wheelbarrow mounting is available for carrying power plant and lining rams.



**HAND-OPERATED** hydraulic pump is available for use with cylinders when lining with small gangs.

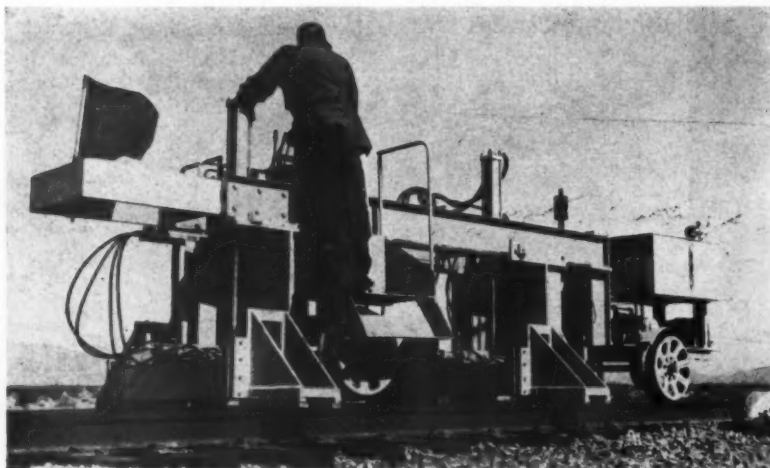


base of the rail. The locking feet are operated by a separate hydraulic control valve. The base of the main cylinder consists of an arch-shaped channel, 18 in long, which bears in the ballast.

The power plant and attachment may be quickly broken down into two units for removal from the track.

Using hand-held hydraulic cylinders, the power plant may then be utilized for lining through switches, crossovers, road crossings and station platforms.

Two other adaptations of this lining equipment are available, which are shown in the two photos directly above—*Railway Track-work Company, Philadelphia*.



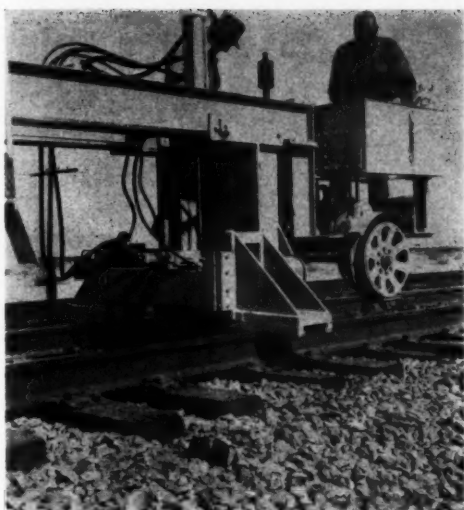
**TWO LINING** heads are mounted on Tru-Liner machine. Heads have hydraulic rams for making throws and spuds for anchorage, and heads can be moved longitudinally along frame to place them as close together as 3 ft and as far apart as 11 ft.

### ARC TRU-LINER

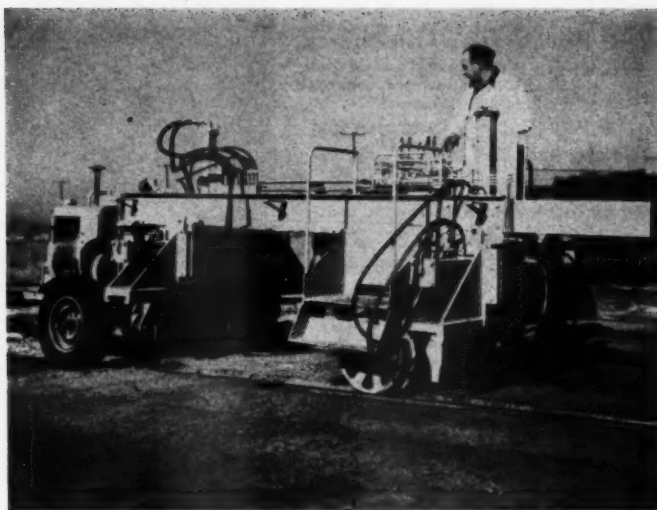
Under development for the past four years, this is the latest track-lining machine to be announced. Although designed principally for use with instruments for computing the required throws by the stringline method, the unit, reportedly, can also be used in much the same manner as any other lining machine.

All hydraulic in operation, the Tru-liner is 16 ft long and weighs 16,000 lb. It consists essentially of a steel frame with flanged wheels for operating along the track, two hydraulically-operated spuds for anchorage during a throw, and horizontal-acting hydraulic rams for making throws.

The lining heads, containing the



**SLOT** in end of lining head is for "dog" which pushes against rail base. "Dog" was removed for picture.



**RUBBER-TIRED** wheels can be installed under one end of machine. Other end is then raised and attached to truck hitch for movement over highway.

spuds and rams, can be moved longitudinally along the frame of the machine so as to locate them as close as 3 ft or as far as 11 ft apart. Throws of from 1/32 in to 12 in can be made at one set up. Only one man is required for operating the unit; however, a second

man serving as helper is recommended.

The Tru-Liner is powered by a 25-hp air-cooled engine, and propels itself along the track by means of a hydraulic motor at a maximum speed of 25 mph. Transverse set-off wheels permit the

unit to be rolled off the track sideways on steel rails. By lifting one end of the machine on its spud, a set of pneumatic tires, wheels and an axle can be attached for highway movement. *American Railroad Curvelining, division of R. K. Price Associates, Inc., New York.*

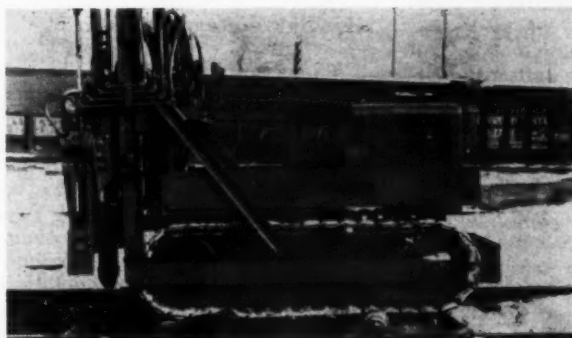
## RMC LINEMASTER

This machine is crawler-mounted and is designed to move along on the ties between the rails. All-hydraulic in operation, it is powered by a 15-horsepower motor.

Lining is accomplished by a lining head situated on the front of the unit. The head comprises a horizontal-acting hydraulic ram which pushes against the base of the rail, and a hydraulically-rotated spud which is inserted into the tie crib for anchorage.

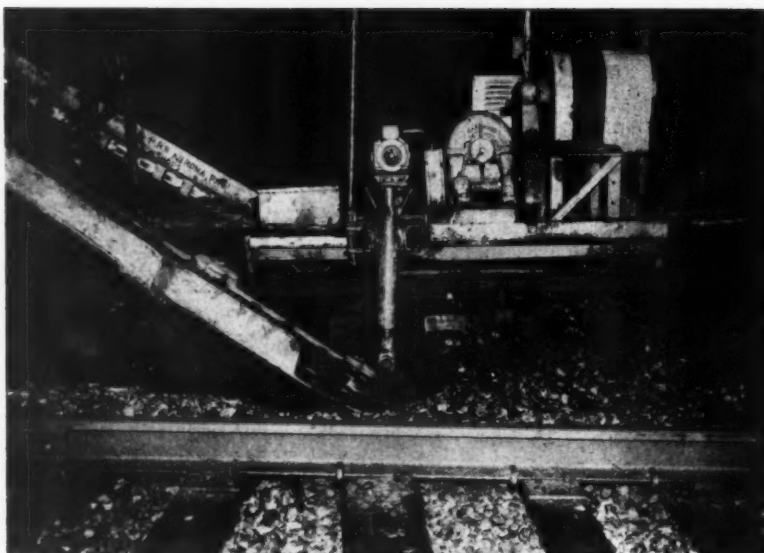
When removing the LineMaster from the track, the operator raises the machine above the track rails with a hydraulic jack, then rotates the unit so that it is crosswise of the track.

The lining machine can then be driven off the rails on its crawler tracks—*Railway Maintenance Corporation, Pittsburgh, Pa.*



**ABOVE**—LineMaster operates between rails on crawler treads. Lining head has hydraulically-rotated spud for anchorage. **LEFT**—Dolly wheels permit unit to pass over switches.

**CUTTING CHAIN** digs to depth of 11 in under ties. Chain is entering from this side and delivers ballast to inclined conveyor in background.



## To Get More Clearance . . .

# Undercuts Tracks in Tunnels

● The job of lowering tracks in tunnels on the Norfolk & Western, which is a recurring task of considerable magnitude on that road, has now felt the full impact of mechanization. By adapting available machinery to do this work during the past winter, the railroad has been able to expedite the operations and to reduce the cost considerably.

The work has been in progress on a section of the road's double-track main line in West Virginia, which extends through mountainous territory, and where, consequently, a rather heavy concentration of tunnels is encountered. The section where the tunnel work is underway extends from Stonecoal on the west to Welch on the east, a distance of approximately 88 miles. The tunnels here are either double track or there are separate single-track tunnels for the two main lines. Thus, it was possible to have the use of a track during working hours.

### Why Work Was Necessary

General practice on the N&W is to surface its main-line tracks out of face on a three- or four-year cycle, at which time an average 2-in raise is made. This means that the tracks in tunnels must be cut down periodically to maintain proper clearances. In the past the work was done by hand in an op-

eration which involved excavating the ballast as necessary and wasting it. Obviously, the work involved was costly and time-consuming.

Because successive track raises had caused the clearances to be reduced to a point approaching the allowable minimum, the railroad last fall was again faced with the problem of lowering the tracks in a number of tunnels. However, instead of using the hand methods of the past, it was decided to employ a Matisa ballast cleaner. This machine has an endless digging and conveyor chain that is threaded underneath the track to excavate the ballast. The excavated material may be delivered directly to a conveyor for disposal or to a double vibrating screen for cleaning, with the cleaned ballast being returned to the track and the dirt being delivered to an inclined conveyor for wasting along the track or for loading in cars.

The Matisa machine makes a cut of 11 in beneath the bottoms of the ties, this being the combined depth of the cutting chain and its guide. In the tunnel work on the N&W it was decided to cut the tracks down a uniform depth of 5 in. Here is the way the 5-in cut is achieved: In advance of the work in each tunnel, a 3-in raise is made with a power jack to permit necessary tie renewals to be carried out and every fourth tie is tamped with

an electric vibratory production tamper to hold the raise ahead of the ballast cleaner. Following the cut of 11 in made by the cleaner, necessary new ballast is dragged and the track is again raised 3 in and tamped out of face with the same tamper. This gives a net cut of 5 in.

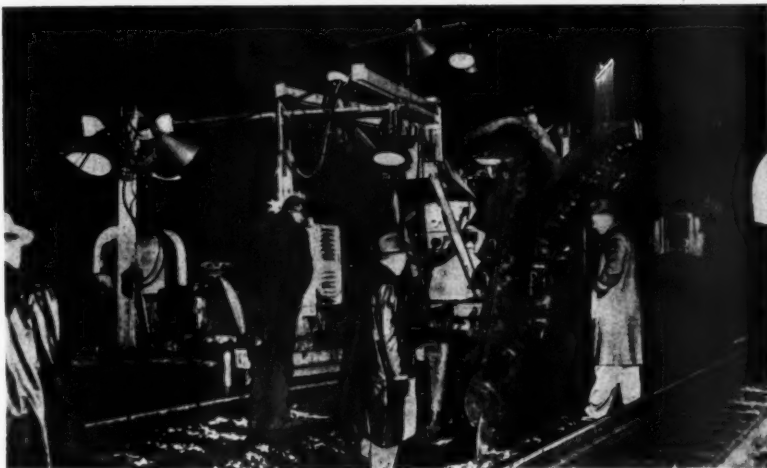
It is reasoned that the 5-in cut will be sufficient to maintain the proper clearances through three surfacings, each involving a raise of 2 in, which are made three or four years apart. This involves a total raise of 6 in, but it is felt that the track will settle about an inch.

In the tunnel operations now underway, the ballast on about half the footage being covered is so fouled and saturated with moisture that it is being wasted in its entirety. On the remaining footage, the ballast is being cleaned and returned to the track.

### Handling Excavated Material

To permit use of the ballast cleaner in tunnels, it was necessary to make special arrangements for disposing of the excavated material to be wasted. A number of drop-end gondolas were obtained as the hauling units. A hopper with two discharge openings in the bottom, was mounted overhead at one end of one of these cars. In operation this car is coupled directly to the rear end of the ballast cleaner in





Because of repeated surfacings the N&W occasionally finds itself confronted with the costly task of lowering the tracks in its many tunnels to maintain required clearances. For the first time this operation has been mechanized through the use of a ballast-cleaning machine of the type that excavates material from beneath the ties.

LIGHTS for tunnel work (left) operate from generator on machine. Men shown are C. D. Cruise (in raincoat), asst. supv. rdwy machines, N&W, and J. S. Bradshaw (in topcoat), asst. mgr. rdwy. maint. Waste material is conveyed to hopper on gondola car (below) and dumped in fork-lift trucks.

such position that the waste material can be discharged into the hopper. Three additional gondolas are coupled to the car carrying the hopper. For handling the material from the hopper to the cars, three fork-lift trucks are used, each with a self-dumping bucket mounted on the forks. These trucks, which can carry about a yard of material, shuttle back and forth through the cars, loading their buckets at the hopper and emptying them as far back as possible in the string of gondolas.

When the three gondolas are loaded, they are uncoupled and three empties are attached immediately so that the operation may proceed without interruption. The three loaded gondolas are removed from the tunnel by a work train and unloaded at a suitable place with a clamshell bucket.

At a number of locations where it has been convenient to do so, air-dump cars have been used for hauling and dumping the waste material. These can be used only where it is possible to obtain use of the second track for a reasonable length of time. When this can be done, the waste material is loaded directly into the dump cars by swinging the discharge conveyor to a lateral position.

The ballast-cleaning work in tunnels is lighted locally by floodlights mounted at strategic locations on the ballast cleaner. Power for these lights is provided from the generator on the machine. General illumination is furnished by hook-on lights attached to an existing power line extending through each tunnel.

The work of raising and ballasting the track after the cleaner has passed is always done the same day and is never allowed to lag more than four hours behind the clean-



ing operation. This follow-up work, incidentally, is done by the road's regular division ballasting force which also performs the preliminary tie-renewal and track-raising work ahead of the cleaning operation.

Working ahead of the ballast cleaner, an engineering party runs levels to establish a grade line both inside the tunnels and for the run-offs on the approaches. The run-offs may extend 1000 ft or more from the tunnel portals. Outside the tunnels the engineering party sets grade stakes to the top of rail, while inside the grade is indicated by marks on the side walls.

An interesting sidelight on the tunnel work is that the inside guard rails are loosened and shifted to the center of the track to permit operation of the tamping machine. So that the power jack could be operated with the guard rails in this position the conventional jacking foot was removed and replaced with two feet so arranged as to straddle the guard rails.

In addition to the tunnel work, the Matisa machine is being used to cut down the grade at various locations outside tunnels, such as on bridge approaches where successive raises have put the struc-

ture in a sag, under overhead structures where more clearance is needed, and at summits where a significant reduction in grade may be achieved by cutting down the track. In fact, the railroad has one project tentatively on the schedule which will involve cutting down the track 3 ft at a summit, requiring several passes of the machine.

The current program started on November 29 last year when the machine was placed in operation between Chillicothe, Ohio, and Kingston. In this work, which involved about a mile of open track, the machine was used to reduce the superelevation on a curve in order to achieve a desired adjustment in the compensation for curvature. When this job was finished the machine undertook the first tunnel job near Stonecoal and began to work eastward from there. A total of eight tunnels are on the program, most of which will have been completed by the time this article gets into print.

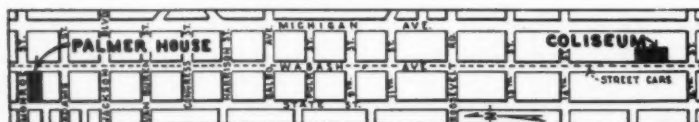
Experience on the N&W is that the production of the ballast cleaner when working in tunnels averages about 100 ft per hour; in open track the rate of progress averages 250 ft per hour.



**Jess Mossgrove**  
President  
National Railway Appliances  
Association

# Progress in Products . . .

. . . is theme of exhibit  
to be held March 14-17  
at Coliseum, Chicago, by  
National Railway Appli-  
ances Association



**What:** Products exhibit for engineering and M/W officers.

**Where:** Coliseum, 1513 South Wabash avenue, Chicago.

**When:** Monday—9:00 am to 6:00 pm; Tuesday—9:00 am to 6:00 pm;  
Wednesday—9:00 am to 6:00 pm; Thursday—9:00 am to 3:00 pm.

● Do you want to know what the manufacturers are offering in the way of new and improved equipment, materials and products to help engineering personnel do a better job of building and maintaining the nation's railroads?

Here's your chance to see what's being offered—all assembled under one roof at Chicago. Many products are being displayed for the first time, some having been developed since the last equipment exhibit of this type.

A total of 120 companies, including 26 which have never before displayed their products at previous "shows," will occupy the 267 booths available in the building's exhibition hall.

## List of Exhibitors

*Numbers shown refer to booth spaces on drawing.*

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American Chemical Paint Company	172
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Aeroquip Corporation	1-S
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Bernuth, Lembcke Co., Inc.	128
Binks Manufacturing Co.	8-N
Bird & Son, Inc.	143-144
Blaw-Knox Equipment Division of Blaw-Knox Company	7-N
The R. H. Bogle Company	5-N
Briggs & Stratton Corp.	3-S
The Buda Company	42-43

F. Burkart Manufacturing Company . . . . . 56-A

Camel Equipment Corporation	40-N
Caterpillar Tractor Co.	77-81 & 97-101
Chicago Pneumatic Tool Company	65
Chipman Chemical Company, Inc.	23-24
Continental Motors Corp.	178-A
Cullen-Freistedt Company	66-67

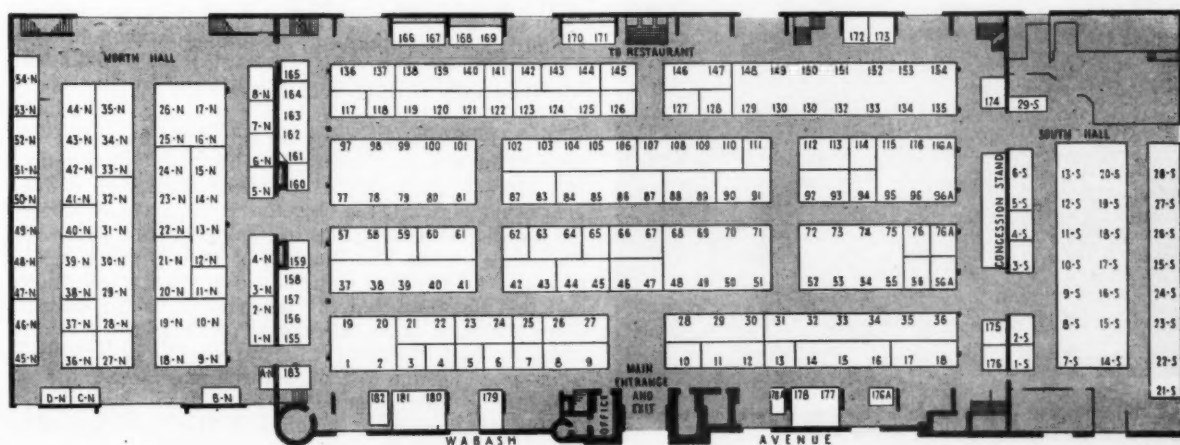
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Dow Chemical Company	53-N, 54-N

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Electric Tamper & Equipment Co.	119-121
Enterprise Railway Equipment Co.	6-N

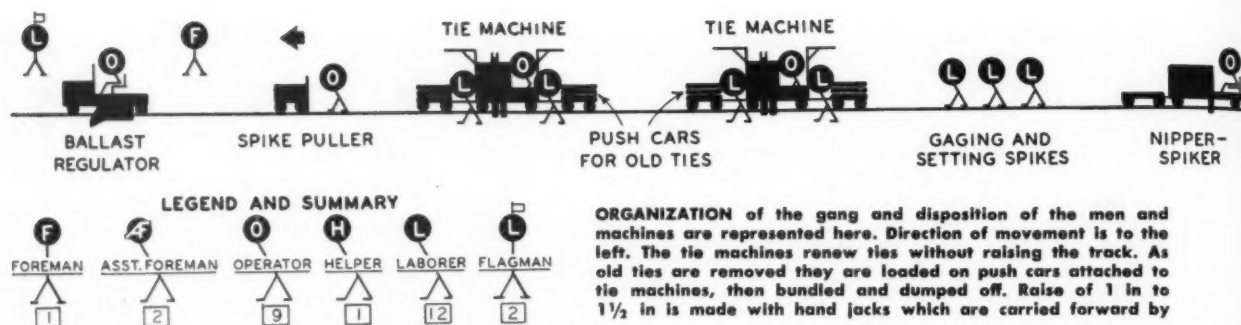
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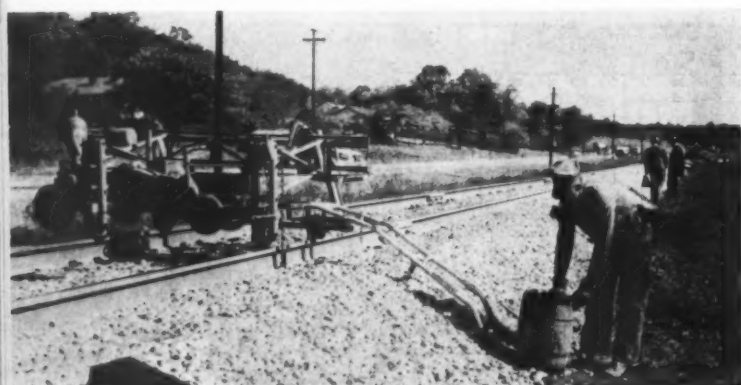




1 BALLAST regulator at head end of gang plows ballast away from ties to be renewed.



2 SPIKE PULLER is fitted with special bracket for carrying a spike keg. When keg is full the . . .



3 . . . HINGED part of bracket may be lowered to serve as skid, facilitating removal of the keg.

## Production Through Automation

Track-raising and tie-renewal gang, utilizing 10 machines and only 27 men, including foremen, approaches the ultimate in mechanization.

● How many men would you say it takes to "put up" 900 to 1000 ft of track per hour in an out-of-face operation involving relatively heavy tie renewals? That's the average output of finished track of a gang of 27 men, including a foreman and two assistant foremen, now in operation on one railroad. During a representative day, when this gang had the use of the track for 7 hr and 15 min, it put up a mile of track and renewed 435 ties—and those in charge declared that additional ties could have been inserted without slowing up the operation as a whole.

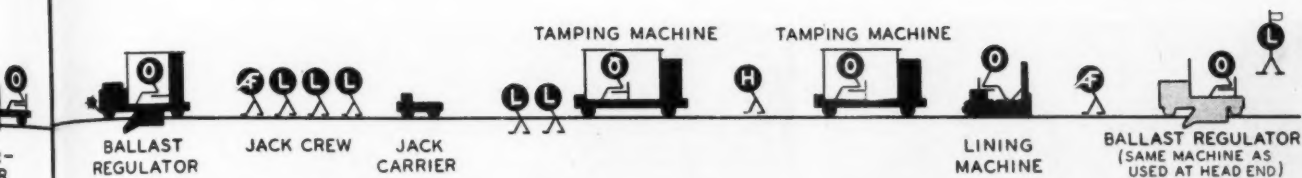
The answer, of course, lies in a phenomenal degree of mechanization. But this doesn't tell the whole story. The gang is further characterized by the use of machines and men in such combination as to achieve a balanced organization, that is, one in which the different elements progress at a uniform rate with a minimum of waste motion or lost time anywhere along the line.

At the top of these pages is a schematic silhouette diagram of the entire organization. Supplementing the diagram, the photographs show in numbered sequence the principal machines and operations.

### Tie Renewals on Five-Year Cycle

By way of background information, it should be noted that the road on which this gang is operating has adopted the policy of renewing its ties on a five-year cycle, and that the objective is to provide a sufficient number of these gangs to implement this policy on the entire system. The function of each of the gangs is to renew all ties that won't last five years, raise, tamp and line the track out of face, and dress the ballast. Since the track is raised only as much as necessary to eliminate irregularities in the surface, the raise is held as close as possible to 1 in, and the maximum is 1 1/2 in.

Before a gang goes to work on a given territory, the ties to be renewed are marked. One mark indicates



the jack carrier. The gang works under traffic, clearing for all trains. Both ballast regulators are equipped with radio so that foreman, using radio set on regulator in center of gang, can tell operator of other machine when to clear for trains. Tampers may be either Matisa or RMC (McWilliams) machines. Plan is to organize sufficient gangs to renew ties on a five-year cycle.

that the tie is considered suitable for reuse in secondary main-line tracks, two marks indicate it is good for use only in yard tracks, and three marks mean that the tie is not fit for further service. In the tie-renewal work all ties removed from the track are bundled by the same gang. Those ties with one or two marks are bundled together, and those with three marks are bundled separately. Although these latter ties are destroyed by burning they are bundled to facilitate handling and to eliminate the work of collecting and piling them later.

#### Other Preliminary Operations

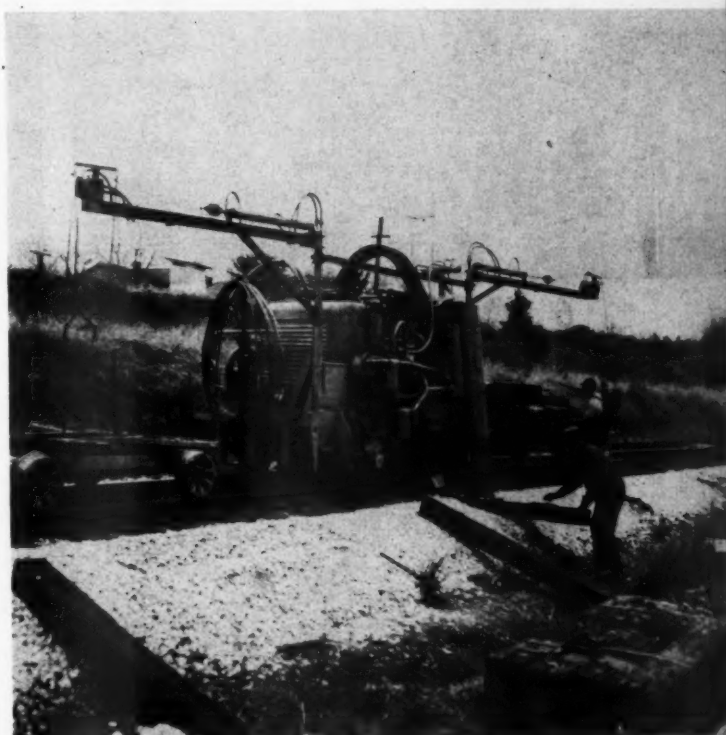
In addition to the marking of the ties to come out, other preliminary work includes the distribution of new ties by work train and the dragging of sufficient ballast to take care of the raise and for dressing out behind the operation. If the existing ballast needs cleaning, this work is programmed to be done ahead of the tie-renewal gang, necessary ditch-cleaning and bank-restoration work is also carried out, and engine burns and battered rail ends are repaired by welding.

From the silhouette diagram and the photographs it will be noted that the tie-renewal operation is preceded by a ballast regulator. This is a Kershaw machine and its function is to plow away the ballast from one end of each tie to be removed to facilitate use of the tie machines when pushing out the old ties. This is only a part-time job for the ballast regulator. Later in the day it drops behind the gang to perform the final operation of dressing the ballast.

Following behind the ballast regulator at the head end of the gang is a Fairmont hydraulic spike puller which is used to pull spikes from all ties to be removed. As the spikes are removed they are tossed by the operator into a keg carried on a bracket mounted on the left-hand side of the machine. When the keg becomes full, a hinged skid is lowered so that the operator may easily set the keg onto the roadbed shoulder to be picked up later. The operator of the spike puller also carries a claw bar for removing spikes that can't be pulled with the machine. Where the old ties to be removed are boxed with rail anchors, those on one side only are knocked off by the spike-puller operator using a hammer which he carries for this purpose.

#### How Ties Are Renewed

The two tie machines used with the gang are "Tie-Masters" as manufactured by the Railway Maintenance Corporation. In operation the machines lift the rails slightly while the old tie is forced out of the track and the old tie bed is scalped by a ram (see photographs). The new tie is drawn into position by the ram on the



4 TIE MACHINE has hydraulic cylinder on each side, which bear in the ballast, permitting rails to be lifted slightly.



5 OPPOSITE SIDE of tie machine showing ram in contact with end of tie to be removed.

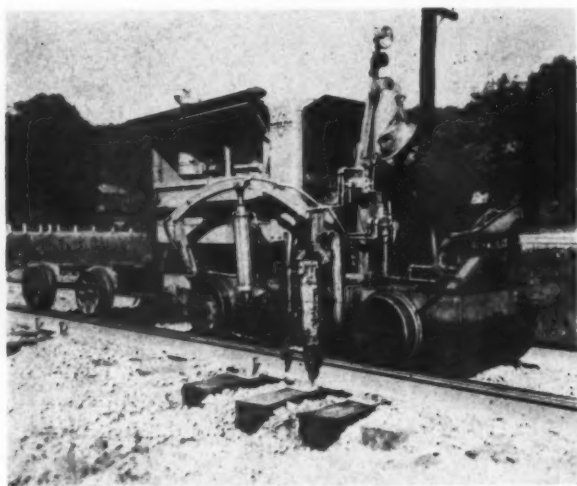
MORE PICTURES ON NEXT PAGE →



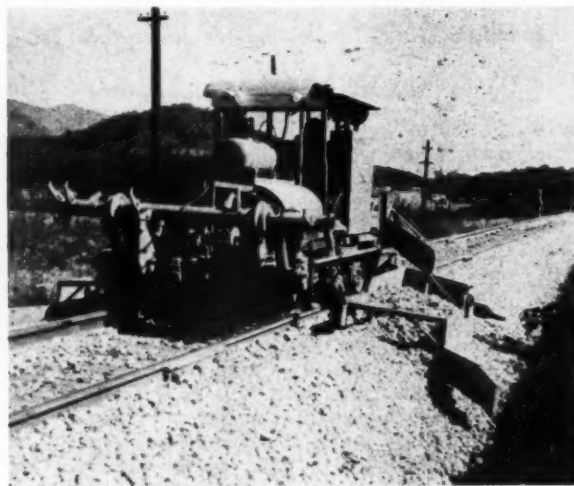
**6** OLD TIE, just out of the track, is already being moved to push car with aid of tongs and hoist.



**7** NEW TIE has been attached to end of ram by steel strap and is on its way into the track.



**10** NIPPER-SPIKER has air-activated tongs between rails for nipping up tie while all four spikes are driven.



**11** REGULATOR for distributing ballast ahead of tamper has scarifier for tearing up asphalt grade crossings.

reverse movement, using a steel strap with a hook at each end. The hook at one end is fastened to the ram and that at the other is driven in a prebored hole in the new tie. When the new tie is in position the strap is detached and placed in a transverse inclined chute by means of which it is delivered to the other side of the track for reuse. Meanwhile, the tie machine is moving forward to the location of the next old tie to be removed.

Coupled to the front and rear of each TieMaster is a special push car on which the old ties are loaded. To facilitate the handling of the old ties a jib boom carrying a power hoist is mounted at each end of the tie machine. As the old tie comes out of the track the hoist line is attached by tie tongs and the old tie is lifted to one of the push cars, the hoist being guided by an extension line in the hands of an employee. When 16 ties have been loaded on one of the push cars two steel bands are applied, and the bundle is dumped off by hydraulic cylinders actuating the bed of the push car.

Two men are employed in conjunction with each

tie machine. They remove the tie plates from the old ties, load the old ties on the push cars, apply the steel straps to the new ties to be inserted, manipulate the new ties as necessary while they are being drawn into the track, insert the tie plates on the new ties, and apply the steel strapping to the tie bundles.

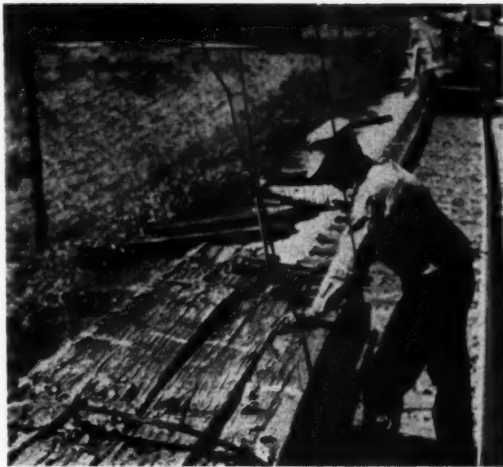
The two tie machines work together in "leap frog" fashion. In other words, in starting work in the morning the head machine will skip a group of ties to be renewed (usually 16 as this constitutes a bundle), and after renewing about 16 ties it will skip the next group, and so on.

The experience with these particular gangs is that the tie machines will each change out an average of a tie a minute.

#### Gaging and Spiking

The three-man crew following behind the second tie machine checks the track gage and corrects the gage where necessary. They also set the spikes to be driven by the nipper-spiker. This is an RMC machine, recently

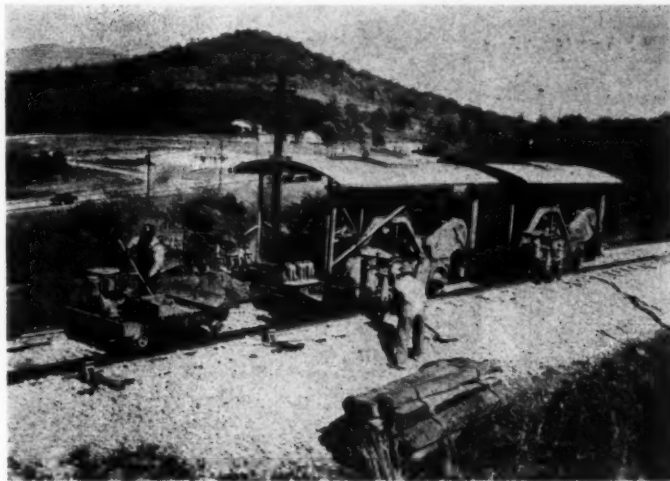




**8** APPLYING BANDS to bundle of 16 ties on push car. Bundle will then be dumped by hydraulic action.



**9** TIE BUNDLE being dumped from push car. Dumping is done by hoist controlled by man at left.



**12** JACK CARRIER approaching lead tamper (Matisas in this case). When carrier bumps tamper it will reverse and jacks will be dumped into it.



**13** TAMPERS are operated in tandem. (This view shows McWilliams machines.)

placed on the market. Known as the "Spike-Master" this machine, which is self-propelled, has two sets of air-actuated tie tongs which engage the tie between the rails and raise it firmly against the plates and rails while the spikes are driven simultaneously by four pneumatic hammers. It is said that the spike hammers are adjustable for all standard tie-plate punchings, and that they can be set to drive either rail spikes or anchor spikes.

Following behind the "SpikeMaster" is another Kershaw ballast regulator which pulls the ballast up into the track and distributes it as needed for the tamping operation. A feature of this machine is that it carries on its front end a rotary scarifier especially designed for tearing up asphalt highway crossings to permit the ties to be tamped through them. The scarifier covers the width between the rails and to a distance several inches beyond the ends of the ties. Carried with this ballast regulator are an electric impact wrench for removing screw spikes from flangeway planks at highway crossings, an electric drill for boring new holes when replacing the flangeway planks, and an electric hammer

for redriving the spikes. These are powered by a Home-lite generator mounted on the regulator.

In the track-raising operation, 36 track jacks are worked ahead of the tampers, 18 on each side. The jacks are placed at every sixth "eye." One of the men in the jack crew cuts the jack holes and the other two place and pull the jacks.

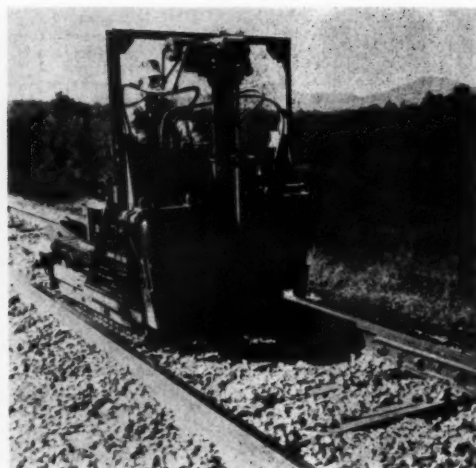
#### Two Production Tampers

For the tamping operation two production tampers are employed. These may be either Matisa or RMC (McWilliams) machines. In either case a Matisa jack carrier is used to carry the track jacks forward. This is a self-propelled four-wheeled unit, operating unattended, which reverses automatically when it bumps the head tamper.

Two men working at the lead tamper remove the jacks from the track and place them on collapsible platforms mounted on the head end of the tamper, one on each side. Each of these platforms will accommodate five jacks. When the jack carrier, returning



**14** MAN unloading jacks from carrier. When empty, carrier will be reversed for return trip.



**15** TRACK LINER has spud which penetrates ballast to anchor machine.



**16** OPTICAL instrument is used with track liner on tangent track. Only manpower needed for this job is assistant foreman and operator.



**17** BRINGING up the rear, a ballast regulator dresses the ballast to desired section.

from delivering a load of jacks, bumps the head tamper it not only reverses itself but trips a lever which causes the jack platforms to collapse, dropping the jacks into the carrier. Traveling at a speed of about 3 mph, the jack carrier then moves unattended towards the forward end of the track-raising operation. While the carrier is in motion the jacks are removed at the desired locations by the same men who place and pull them.

When the last jack has been removed the direction of movement of the carrier is again reversed by one of the men, causing it to start back toward the head tamper for another load of jacks. As a safety precaution a special skate is placed on the track two or three rail lengths in advance of the head jacks. If, by chance, the jack carrier should get this far it will run up on the skate and remain there, with the wheels turning, until its direction of movement has been reversed.

Generally speaking, the tamping machines tamp alternate ties, making a single insertion at each tie. However, when working on a curve where one rail is pulled more than the other, the practice is for the head machine to tamp both ends of each tie, while the sec-

ond machine tamps only on the side getting the most raise. Both types of tampers used with these gangs have split crossheads.

#### Lining Also Mechanized

Following behind the tamping machines is an RMC "LineMaster," a crawler-mounted unit operating between the rails, which lines the track. One man is in charge of this operation.

As the final operation, the ballast is dressed by the same Kershaw ballast regulator that is used at the head end of the gang.

These gangs work under traffic, clearing for all trains by means of set-off devices.

Radio is used in controlling the movements of the ballast regulators, both of which are equipped with two-way Motorola sets. Using the radio on the regulator working between the tie machines and the tampers, the foreman can instruct the operator of the other regulator to clear for trains, regardless of how far in advance of the gang he may be working.

● The Frisco's latest development in off-track, pole-driving equipment is a crawler tractor with a rear-mounted boom. In this machine, the Frisco has found an economical means of driving old railway ties into soft roadbeds for stabilization in marshy and river-bottom lands.

The new pole-driving attachment was built in the road's roadway equipment shop. Basically the machine is a narrow-gage Caterpillar D6 tractor with a Hystaway attachment from which the crane boom has been removed and replaced with a pole-driver attachment and drop hammer. The 18-ft leaders make up the attachment and 10-in I-beams and steel rods secure it to the Hystaway framework.

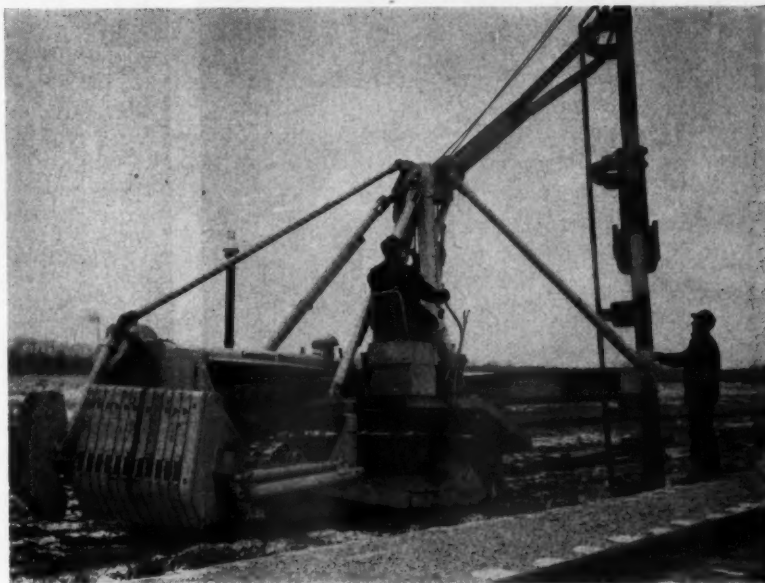
The hammer weighs 2,500 lb and is rigged with a  $\frac{1}{2}$ -in wire rope which is activated by the Hystaway. The operating range is 45 deg either way from center. A side-mounted seat with dual controls allows the operator to face the rear of the tractor so that he can observe driving operations.

To off-set the extra poundage added to the rear of the tractor, 3½ tons of counterweights have been added to the bulldozer C-frame. As an added precaution against breaking the cable holding up the bulldozer C-frame and to relieve the weight on the front-mounted cable control, the C-frame has been secured to the tractor's radiator guard with a tie rod. Another tie rod extends from the radiator guard up to the top of the Hystaway mast.

#### Use Three-Man Crew

A three-man crew works with the machine driving 8-ft ties and poles up to 12 ft long. One man operates the unit, one digs centering holes along the track and a

## For Roadbed Stabilization Work . . .



POLE-DRIVING rig is adapted from a Caterpillar D6 crawler tractor and a Hystaway attachment. Boom and leaders were fabricated in Frisco's shop. Counterweights attached to C-frame offset extra weight on rear of tractor.

## Off-Track Pole Driver

third positions the ties in the holes under the hammer.

The machine is designed so that it can be disassembled easily and shipped from one destination to another. Tubular struts are connected to the leaders with pins which are removed once the tractor has been driven onto a flat car. This allows the attachment to rest horizontally on an adjoining flat car, thereby giving an overhead clearance no higher than the height of the tractor.

Although the tractor pole driver has been in operation for only a short time, officers reported that

the machine is very well balanced and has already turned in a record driving of 198 ties in one 6-hr day. The operator in charge of the outfit stated that he was confident the machine could drive up to 300 ties per day in soft material. Clutch trouble resulting from overheating—a common fault with earlier models of pole-driving machines—has been noticeably lacking with the Hystaway attachment according to reports. Cost figures on the operation are not yet available, but the road feels that this machine will outdo all previous ones in economy of operation.

#### How They Used to Do It

The history of pole-driving for roadbed stabilization on the Frisco dates back to 1938 when a firm from Dallas contracted with the line to drive some 5,000 ties with two on-track machines. In 1939, the road developed its first pole-driving machine for this purpose by mounting an A-frame on the front of a Harvey rail-laying machine and attaching a set of leaders and hammer. It was counterweighted with old rails and operated on track. The old machine worked comparatively well and was used considerably in roadbed stabilization.

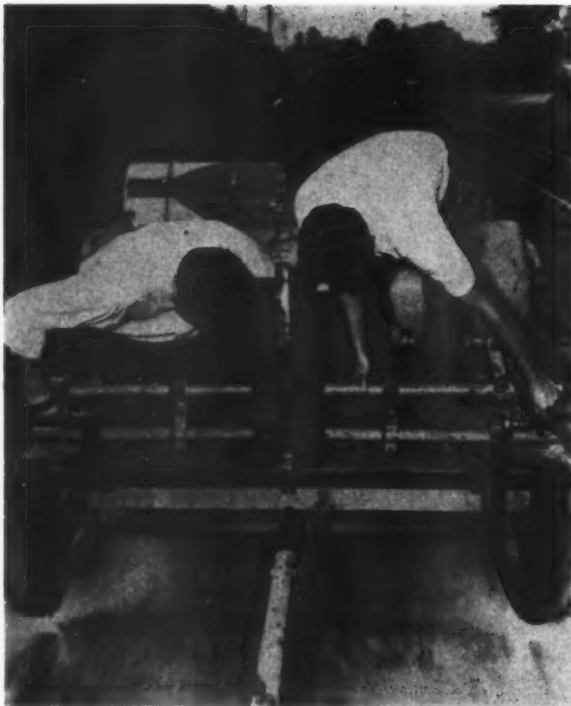
Following the converted rail-laying machine, an on-track, self-propelled piece of equipment was built with a drop hammer capable of driving poles up to 18 ft in length. This piece of equipment was used for driving old ties largely and was supplemented by regular pile drivers handled by work trains.

The slowness of the former, coupled with the expense of work

trains for operating the latter, made the cost of this stabilization work quite high. Hence, in 1951 the Frisco's engineering department conceived the idea of using a Caterpillar D7 tractor with a Hystaway attachment and crane to drive poles alongside the track. Prior to this time, the road had been using D7s and Hystaways to drive piling in the construction of revetments of jetties in rivers. Equipped as bulldozers, these tractors served the dual purpose of working on bank restoration and grading when not in use for driving piling.

Operating off track, the D7s with Hystaway-crane attachments worked with good results in soft cuts where water pockets existed, averaging 150 to 200 ties per day in soft beds not exceeding 4 ft in height. However, because of inadequate bracing of the leaders, the boom on this rig proved to be somewhat unstable in operation. Thus it was decided to construct the present machine, more sturdily built than its predecessor, for permanent pole-driving work.





**RAIL WASHING** equipment being used in series of development tests on the Reading. In foreground nozzles are spraying detergent on rails. Steam jets, following behind, wash rails clean, thereby removing oil film which reduces adhesion.

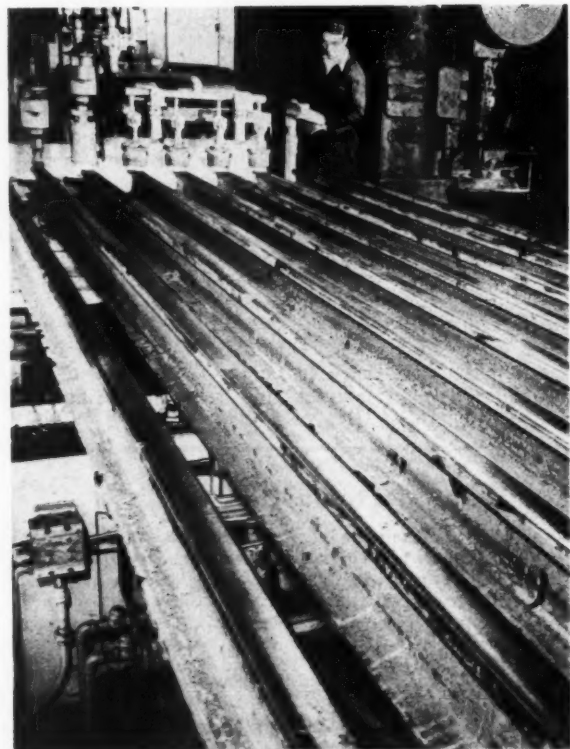


**TRACK MACHINES** of the Kershaw Manufacturing Company, Montgomery, Ala., were demonstrated at the company's annual open house January 26. Demonstration was attended by a large number of engineering and maintenance-of-way officers.

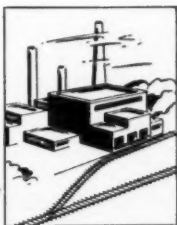
## News Briefs in Pictures . . .



**SEABOARD AIR LINE'S** new \$8½-million yard at Hamlet, N. C. was dedicated January 31. The 4.5-mile-long facility, which took 18 months to build, features a 59-track classification yard with a capacity of 1,280 cars, as well as a new diesel shop, car shop, power plant and yard offices. Automatic retardation is provided at master and intermediate retarders. This view is from yardmaster's tower, which has windows on all sides of the office, giving a panoramic view of the entire yard. A complete communication system, including yard radio on locomotives, intercoms, talk-back and paging loudspeakers, automatic dial telephones and pneumatic tube circuits, is provided. At extreme right is retarder tower with elevated pneumatic-tube lines and steam lines leading to the main yard office.

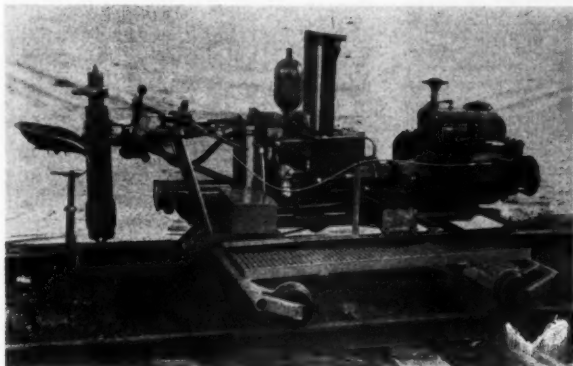


**NEW RAIL** end-hardening facility at U. S. Steel's Edgar Thomson works, Braddock, Pa., is third installation of this type put into service recently. With this unit rail mill will be able to heat treat eighteen 39-ft rails at one time.



## PRODUCTS OF MANUFACTURERS . . .

. . . new, improved equipment, materials, devices



W85 SELF-PROPELLED hydraulic spike puller.



W84 SERIES B hydraulic spike puller is manually propelled.

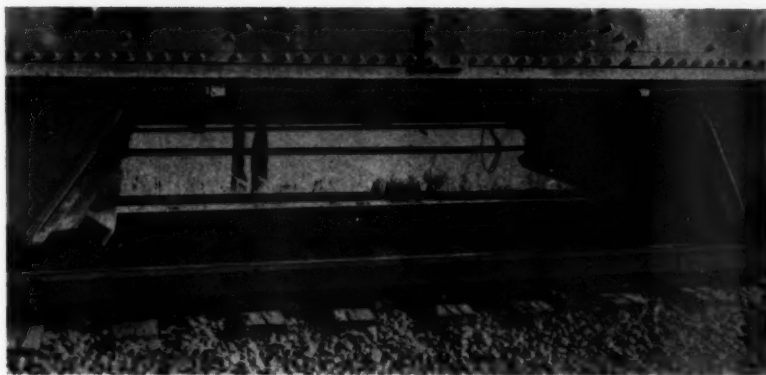
### SPIKE PULLERS

BOTH MODELS of the hydraulic spike pullers manufactured by Fairmont Railway Motors, Inc., Fairmont, Minn., have been improved according to an announcement of the manufacturer. The engine of the Class W85 Series A self-propelled puller has been relocated to provide better balance. The hydraulic pump is now mounted on the engine instead of in the reservoir, the low-pressure

micro filter has been replaced with a high-pressure filter and an oil cooler has been added to the system. The lifting post has been changed to accommodate either rail tongs or a hook, a tool tray with an expanded metal floor has been added to the right side of the machine, and the gas tank has been relocated.

The W84 hydraulic spike puller, now to be known as Series B, has been improved to provide for faster operation and better service. These

improvements include a heavy-duty pump, increased pulling effort, better cooling, double filtration of oil, and larger valve ports to permit a faster return stroke. Needle-bearing rollers have been added to the cylinder carriage so that the pulling assembly is easier to move from one rail to the other. Stronger swivel joints have been provided for the cylinder hose and the cylinder and hand valve hoses have been relocated to pass under the pantograph frame.



### SIMPLIFIED BALLAST UNLOADING

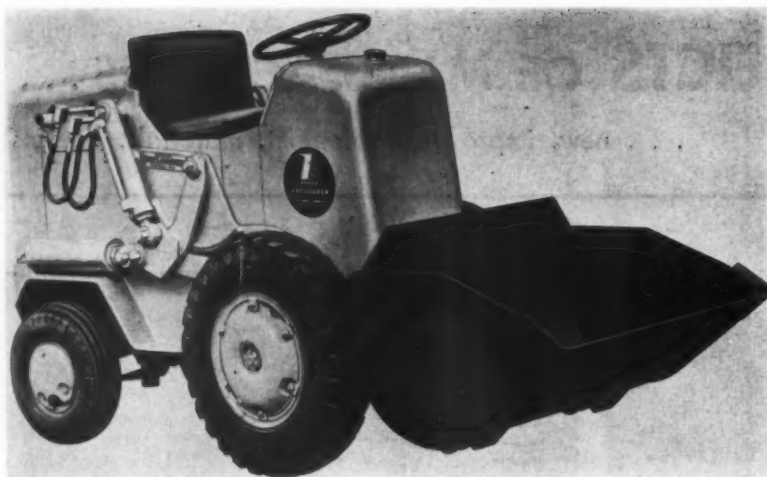
A LABOR SAVING method of unloading ballast from hopper cars, as used on the Elgin, Joliet & Eastern, utilizes standard 1½-in diameter Simplex drop-forged steel

trench-brace fittings manufactured by Templeton, Kenly & Co., Broadview, Ill. To adapt the trench brace for unloading this type of car, a 1½-in pipe of proper length is welded to the butt end of a fitting and two additional arms and a wheel are welded to the standard

wing nut of the fitting, with the arms of the wing nut bent up for easy opening and closing of the screw.

A length of channel beam is welded across two hopper doors (see photo) at each end of the car. Two of the adapted braces are mounted above and between the channel beams and tightened against the two opposite hopper doors. Extension or opening of the screw on the Simplex brace holds the hopper doors closed. When the screw extension of the brace is shortened or closed the weight of the ballast against the hopper doors holds the brace tightly in position against the channel beams.

The flow of ballast from the car can be controlled by closing the screw extension of the brace, which in turn allows the hopper doors to open. No men are required inside of the car for shoveling.



### TRACTOR SHOVEL

FRANK G. HOUGH Company, Libertyville, Ill., has announced an entirely new Model HA Payloader

tractor shovel. The bucket size has been increased to a heaped load capacity of 18 cu ft and a struck load capacity of 14 cu ft. It is stated that the new model is a

more maneuverable machine than the former unit and that it can be operated into and out of box cars with ease. An entirely different bucket arm design is said to permit 40 deg of tipback and make it possible to carry heaped loads at a lower level which is reported to result in greater stability and better operator vision.

A hydraulic accumulator has been provided to minimize load shocks and stabilize the hydraulic controls. Double-acting rams operate the boom arms and the bucket. A full-reversing transmission and a torque converter drive have been supplied. Other new features are said to include improved steering, new solenoid starting controls, new ignition lock, dust-proof distributor, improved bucket construction, hose connectors, sealed grease fittings, new pin lock design, improved ground clearance, increased drawbar pull and a new parking brake.



### LARGE SCRAPER UNIT

A COMPLETELY new 23-yd single-engine, self-propelled scraper has been announced by the LeTourneau-Westinghouse Company, Peoria, Ill. Designated as the Model B Tourmapull, the unit has an overall length of 40 ft 6 in and is 11 ft 8 in wide and 12 ft 7 in high. The machine is powered by a 293-hp diesel engine and has 10 gear ratios, giving speeds of from 2.4 to 28.4 mph. The loading of the Model B has been made easier by its new scraper and deflector plate design, high apron lift and by wheels being located inside the cutting edge of the scraper blade.

Weight distribution in the new unit puts 56 per cent of the loaded scraper weight on the drive wheels which are equipped with 27 by 33, 30-ply tires. Tires and wheels are interchangeable between the prime

mover and scraper. The Model B is equipped with power steering, and its large fuel tank is said to provide a 10-hr supply for full-shift operation without refueling. The machine has a power-transfer differential which keeps power flow equal and constant to both drive wheels. Control of the new unit is entirely electric, and braking is provided by four-wheel air brakes together with a parking brake on the output shaft of the transfer case. It is reported that all major assemblies, such as transmission, clutch, final drive and differential can be lifted from the machine easily and quickly without the necessity of handling other components. All electric motors are also reported to be easily accessible. Despite its size, the manufacturer reports that the Model B can turn around non-stop in a space 35 ft wide.



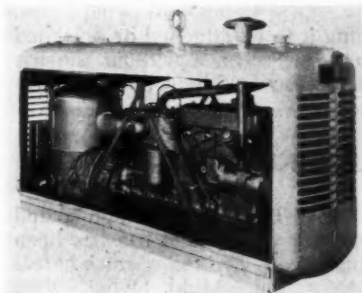
### IMPACT WRENCH

A NEW ROTARY electric Impact tool, which is reported to have 25 per cent more power, has been announced by Ingersoll-Rand Company, New York. Known as Size 5U the tool has a 1/2-in drive and weighs 6 1/2 lb. It is said to meet the



nut-running requirements of modern high-compression, high-torque, automotive engines and is able to handle all but the largest nuts and bolts on cars and trucks. Although developed primarily for automotive use, the 5U Impactool is also said to be a multi-purpose tool which will drill, drive screws, ream, tap, do wire brushing, hole sawing, etc., when adapted with standard attachments which may be easily and quickly applied.

Another improvement that has been incorporated in this device is a renewable synthetic-rubber bumper which snaps onto the front of the tool housing and prevents the entrance of dirt around the driver and protects the housing when the tool is used in tight spots. The tool operates on 110 or 220-volt ac or dc electric current of 60 cycles or under. It has an overall length to the shoulder of the square driver of 10 1/2 in, a side to center distance of 1 7/16 in and a square drive of 1/2 in. It operates at a free speed of 1900 rpm and exerts 1900 impacts per minute.



#### PACKAGED AIR SUPPLY

O. F. JORDAN Company, East Chicago, Ind., has announced a new packaged air supply for any Jordan unit, old or new. This package comes complete and ready to install. It includes a 125-cfm compressor driven by a 35-hp wet-sleeve engine and all of the hose, valves, details and data necessary to adapt the package for installation on a specific unit. It is said that this packaged unit supplies the correct air pressure and volume for proper operation and thereby provides an independent but dependable air supply to insure the maximum operating efficiency of Jordan spreaders, ditchers and snowplows. It is further stated that there is greater flexibility of operation because any kind of motive power can then be used regardless of its air-producing capacity.



#### SHOCK ABSORBER

AN AUTOMATIC air-type shock absorber system has been made standard equipment on its Power Track Cribber, according to an announcement of Pullman-Standard Car Manufacturing Company, Chicago. This newly designed system is said to absorb the unused energy of the cribber crosshead at the end

of the crosshead stroke. It is reported to greatly reduce shock and subsequently reduce overall machine maintenance. The new system consists of two air cylinders and a simple valve arrangement which controls their action. It is further reported that the device was tested on five railroads during 1954 and proved successful in all cases.

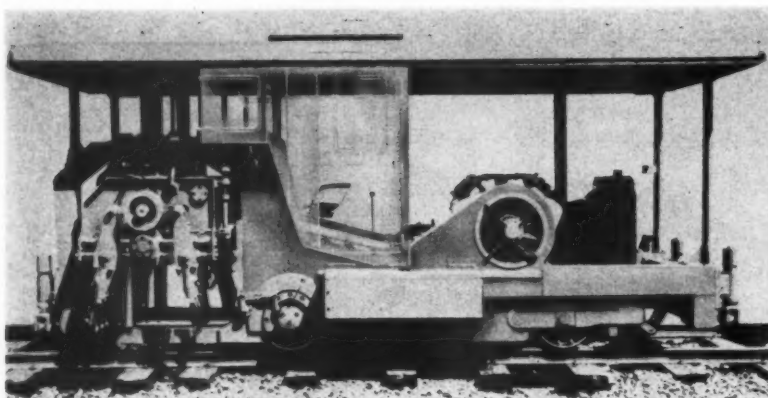


#### HAND-LIKE GRAPPLE

AN ATTACHMENT which is reported to work like a human hand and has almost as full a range of movements has been announced by Warner & Swasey Co., Cleveland, Ohio, for use with the Gradall. The manufacturer states that this grapple can be controlled by the

operator to rotate accurately through an arc of 200 deg in a horizontal plane. It can be tilted 45 deg either way from the center with the boom and its fingers open and close through an arc of 100 deg.

The grapple is operated by hydraulic cylinders which are controlled by the operator.



### NEW MODEL TAMPER

AN IMPROVED version of its automatic tamper, called the Model B-24, has been announced by The Matisa Equipment Corporation, Chicago. Major improvements include: Relocating of the tamping units to the front of the machine, thereby permitting the dead weight of the unit to ride on tamped track; and two-depth tamping which en-

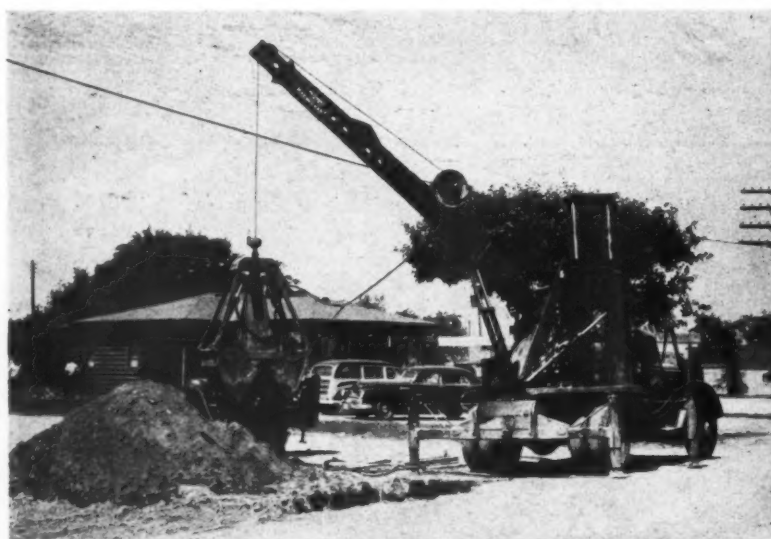
ables the operator, by merely pushing a button, to insert the tamping tools at either of two depths, permitting uniform tamping of both high and low raises. All chain drives have been eliminated through the use of drive shafts and universal joints, except for the chain which transmits power from the transmission to the driving axle. Additional tamping-unit clutches have been added by which the tamping tools

on either side of the machine can be operated independently of each other.

Other improvements incorporated into the new unit include: Automotive-type hydraulic brakes with larger brake drums; four-point weight distribution; lengthwise mounting of the motor, thereby making the machine more readily adaptable to various engines; a centrally located seat for the operator; a new system of constant lubrication for all gears; addition of an operator's cab; and built-in set-off wheels. The new operator's cab allows visibility both during tamping operations and when traveling along the track.

The built-in setoff consists of four pneumatically actuated setoff wheels which can be lowered onto transverse rails. At the same time, the wheels raise the tamper so that it will clear the running rails and can be rolled off the track onto a crib or similar-type setoff.

The Model B-24 is a supplement to the company's Standard Tamper which will continue to be offered.



### NEW CLAMSHELL FOR HYDROCRANE

A NEW  $\frac{3}{4}$ -yd clamshell bucket, employing two hydraulically-operated rams instead of a single center ram to provide bowl action, has been announced by Bucyrus-Erie Company, South Milwaukee, Wis. The new bucket is designed for use with the truck-mounted all-hydraulic H-3 Hydrocrane.

Use of the twin rams, coupled with improved leverage, is reported

to provide 42 per cent more force to the lips at the point of closing than the earlier model bucket. The lower ends of the rams, one for each bowl, are attached directly to the upper edge of the bowl sections. Since the dual rams never extend into the bucket, there is no load interference. Bucket-deck area and internal size have also been increased, giving a struck-measure capacity of 10.4 cu ft. A quick-disconnect coupling has been installed for the tag-line hose, ena-

bling it to be attached or detached in a few seconds without the use of tools and without oil spillage.

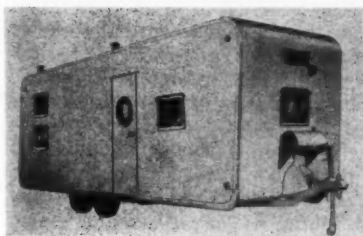
### ALUMINUM-COATED STEEL

A NEW TYPE of aluminum-coated steel for commercial use has been announced by the Armco Steel Corporation, Middletown, Ohio. Known as Armco Aluminized Steel (Type 2), it is reported to combine the corrosion-resisting and heat-reflecting qualities of aluminum with the strength of steel.

The product is made by applying molten aluminum to cold-rolled sheet steel, using a patented continuous pre-treatment and immersion process. General reaction of Type 2 aluminized to atmospheric exposure is the same as that of solid aluminum, and the aluminum-coated sheets are reported to have the same high reflectivity of radiant heat as aluminum. The coefficient of expansion of the coated sheet is only about one-half of that for aluminum; this, together with the higher strength, is claimed to cause less trouble from buckling or tearing at nail, rivet or bolt holes when the sections and panels undergo heating and cooling cycles.

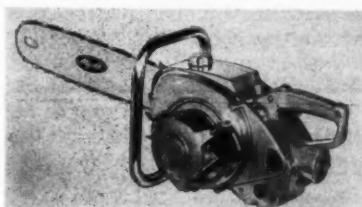
The company states that the cost of aluminized steel is less than the

cost of galvanized steel plus one field coat of paint. The aluminum-coated steel does not require painting to extend its service life.



### HIGHWAY TRAILERS

HOUSE TRAILERS featuring all-aluminum "monocoque" construction are now being offered for railroad use by Mon-O-Coach, Inc., Louisville, Ky. The entire body of this trailer is of aluminum and is constructed as an integrated unit which is said to distribute shock, stress and strain to all trailer-body members and thereby reduce wear to a minimum. The floors of the Mon-O-Coach are heated with a fluid radiant-heating unit furnished by Vapor Heating Corporation. It is said that, because of their ruggedness, these trailers are suitable for off-the-road use. Standard units are now available or special units may be built to a given railroad's specifications.



### CHAIN SAW

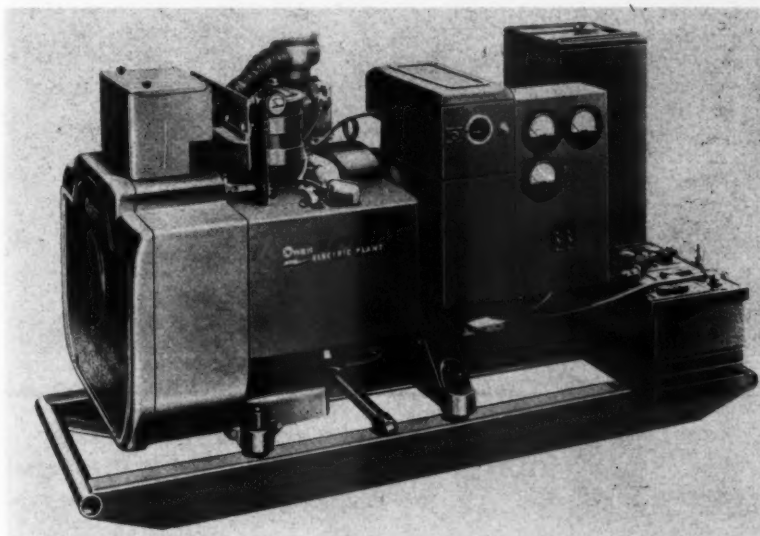
MALL TOOL COMPANY, Chicago, has announced a new addition to its line of chain saws. Known as Model 4MG, the new model is a 5-hp, high-speed, direct-drive chain saw with a 15-in cutting bar and chain. It is equipped with a finger-tip manual-type oiler which is located on the handle. This company also announces that it will soon have in production, a high-horsepower, lightweight chain saw for both one-man and two-man operation. This saw will be known as Model 5MG.



### BALLAST ROUTER

NORDBERG Manufacturing Company, Milwaukee, Wis., has developed a new ballast router designed for use in rail-renewal operations. The machine is operated by a crew of two men. It removes and conveys high ballast from the cribs to the side of the track and sweeps the ties ahead of the adzers. This operation is performed by an end-

less chain which is fitted with steel digging buckets that cut a level trench in the tie crib parallel with the top of the ties. It is said that just enough ballast is removed to expose the tie so as to allow sufficient adzing. A rotary broom sweeps the ties clean. It is reported that this operation also improves drainage and permits easier and faster application of rail anchors.



### SELF-CONTAINED ELECTRIC PLANT

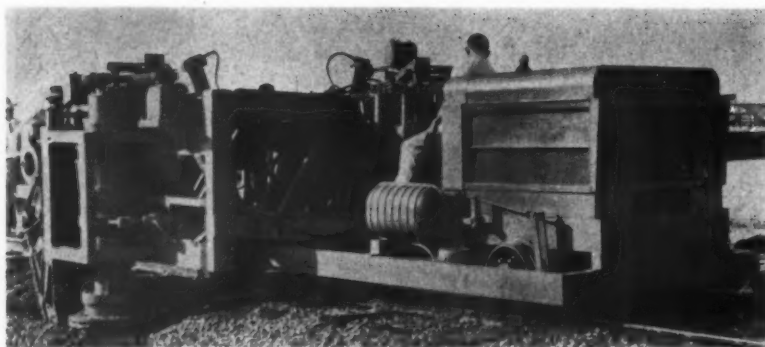
A PACKAGED kit assembly, especially designed for its Model CW electric-generating plant, enabling the plant to be completely self-contained and properly equipped for all types of portable service under all weather conditions, has been announced by D. W. Onan & Sons, Inc., Minneapolis, Minn.

The packaged-kit assembly consists of a sturdily constructed skid on which the generating plant is mounted, a battery rack, fuel tank

and batteries. A 16-gauge sheet-steel weather-proof housing is assembled on the skid base.

The completely housed unit can be supplied with a four-wheel dolly kit or on a two-wheel trailer. The dolly consists of two fixed-axle wheels and two needle-bearing swivel wheels all of which have ball bearings and 8-in by 2-in solid hard-rubber tires. The trailer kit contains an axle, a drawbar with a retractable hinged dead-stand and a clevis-type hitch, underslung semi-elliptic four-leaf springs, wheels, tires and fenders.





### TRACK UNDERCUTTER

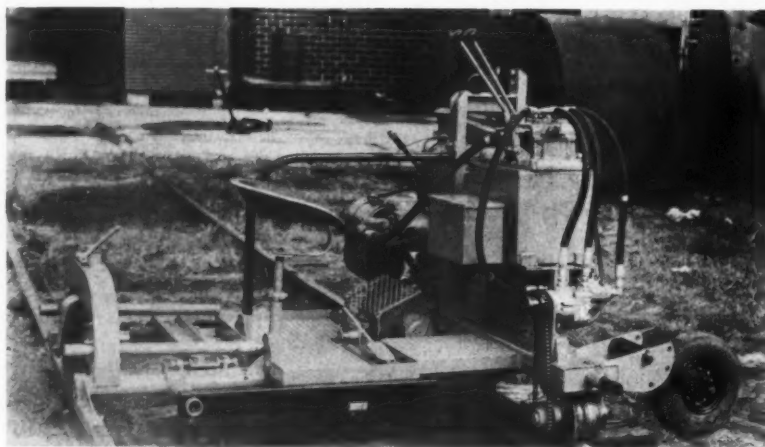
A MACHINE designed to lower track, or to skeletonize track without lowering it, has been developed by the Kershaw Manufacturing Company, Inc., Montgomery, Ala. Still in the experimental stage this

machine is known as the Kershaw Undercutter and Skeletonizer. It is designed to produce an adjustable cut of from zero to 22 in below the top or rail. It is stated that, if a greater depth is desired, it may be secured by additional passes across the area to be lowered.

The machine is self-propelled and is equipped with two hydraulically-operated cutting bars, each 6 ft long, which are mounted on each side of the machine. These bars are equipped with cutting teeth and are rotated in a horizontal plane under the track, from the ends of the ties toward the center of the track. They remove the ballast and pile it on the shoulder. The normal minimum undercut is 5 in.

However, the machine is equipped with jacks so that the rails may be raised to reduce this minimum by any desired amount.

Hydraulic drives have been provided for moving the machine at work speeds and for positioning the major components. The cutters and clearing travel speeds are operated mechanically through gear, shaft and chain drives.



### TIE HANDLER

A TIE REMOVER and inserter for use with tie-renewal gangs, and known as the W90 Tie Handler, has been announced by Fairmont Railway Motors, Inc., Fairmont, Minn. The machine is hydraulically powered, self propelled and may be operated by two men. When working as a tie remover, the machine is fitted with a removable boom which it is said can be removed or applied within a few minutes. It is equipped with pneumatic set-off wheels and self-storing extension lift pipes. It is reported that two men can remove the unit from the track.



### MOTOR-CAR CARRIER

A HIGHWAY TRAILER for carrying track motor cars has been introduced by Fairmont Railway Motors, Inc., Fairmont, Minn. This trailer, known as the TH1 Series, has a load capacity of 1500 lb, weighs 520 lb and includes load-

ing ramps, complete hitch, safety chains, tail light with license bracket and wiring. It is equipped with dual 14 by 4.50-in pneumatic wheels.

These wheels are mounted under the frame to provide minimum overall width and a low center of gravity.

### NON-SELECTIVE WEED KILLER

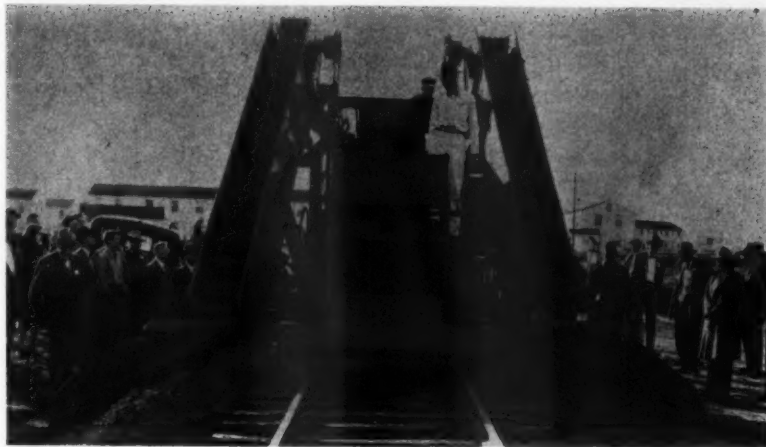
A WEED and grass killer of the non-selective type, called Chlorea, has been announced by the Chipman Chemical Company, Inc., Bound Brook, N. J.

Chlorea is a uniform, non-separating combination of sodium chlorate, borate and CMU. This combination is said to provide the effectiveness of chlorate on deep-rooted weeds with the prolonged soil-surface action of CMU on shallow-rooted grasses and annual seedling growth. It also is reported to have a lasting residual effect to inhibit regrowth. Chlorea is non-poisonous and, because of its borate content, does not create a fire hazard when used as directed.

## BALLAST CLEANER

A BALLAST CLEANER designed to work behind the Kershaw Undercutter or be used to clean shoulder ballast independently has been developed by the Kershaw Manufacturing Company, Inc., Montgomery, Ala. The machine, still in the experimental stage, includes two hydraulically-operated bucket elevators, attached one to each side of the machine. These dig into the shoulder ballast to a depth of 9 in below the tie. The buckets raise the ballast material and deposit it on a double-deck vibrating screen which separates the accumulated dirt particles from the ballast.

Clean ballast is spread across the track behind the machine and the dirt is deposited on the side



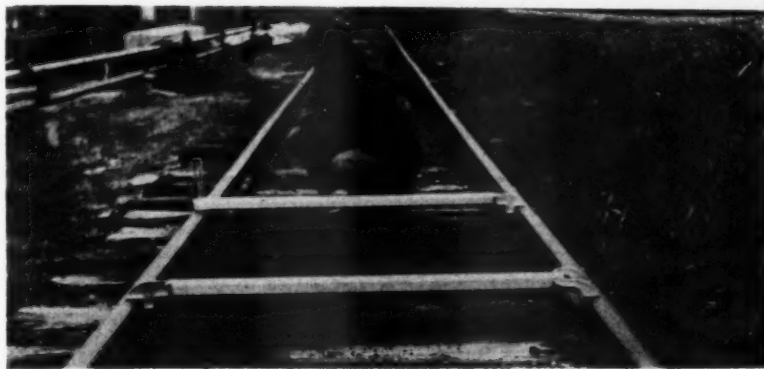
of the shoulder by a conveyor belt. The work operations of the machine are completely hydraulic.

It has a mechanical drive for track operation when clearing trains or making other movements.

## ALUMINUM TRACK TOOLS

TWO ALUMINUM track tools, one a track level, and the other a track gauge, have been announced by The Aldon Company, Chicago. Both devices are constructed of heat-treated square extruded-aluminum alloy with an anodized natural finish to resist weather deterioration.

The track level is insulated and is available with either a 22½-in radius adjustable vial or an AREA-approved adjustable top-plate assembly fitted with a 57½-in radius barrel ground vial. The elevation rod has ¼-in graduations from 0 to 7 in and is adjustable up or down by releasing a thumb-pressure button. The elevation rod slips inside of the hollow tube for protection against damage. The manufacturer



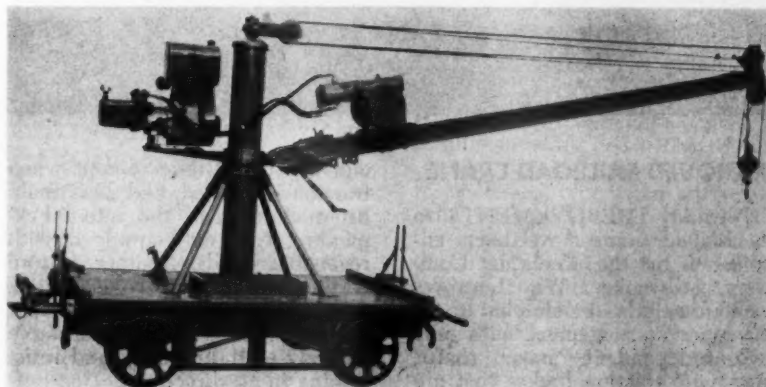
reports that the low center of gravity of the level reduces the tipping-over effect caused by wind or vibrations resulting from passing trains.

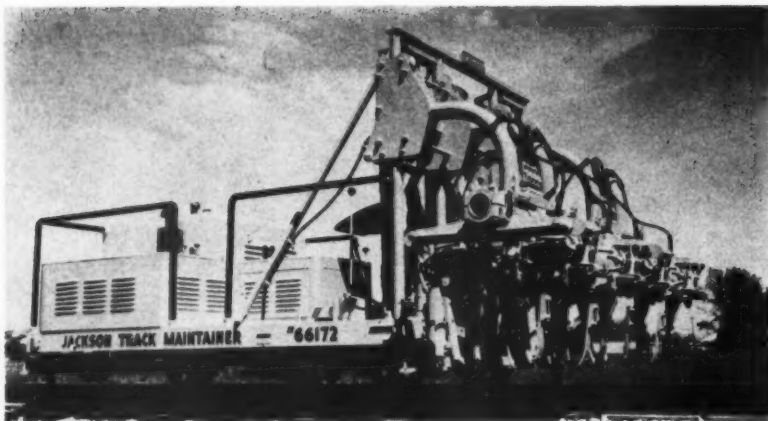
The track gauge is also insulated

and is fitted with end castings of approved AREA design with a guard-rail-spacer lug. According to the manufacturer, the gauge is always accurate and is not affected by climatic conditions.

## POWER LIFT

FAIRMONT Railway Motors, Inc., Fairmont, Minn., has announced a power lift for the W63 (8-ft boom) and W64 (13-foot boom) derrick cars. The power lift is applicable to the hoisting cable only. The boom cable is manually operated. The lift includes an air-cooled engine, combination pump, reservoir and valve unit, hydraulic motor and a worm-type speed reducer. It may be applied either to new units at the factory or to units already in service.





### PRIME MOVER FOR TRACK MAINTAINER

CONTINENTAL engines have been adopted as standard equipment on the Jackson Track Maintainer, according to an announcement by the manufacturer, Jackson Vibrators, Inc., Ludington, Mich. A Continental F226 gasoline engine will be used on all machines where a gas-engine drive is specified. On those machines where a diesel-engine drive is specified, a

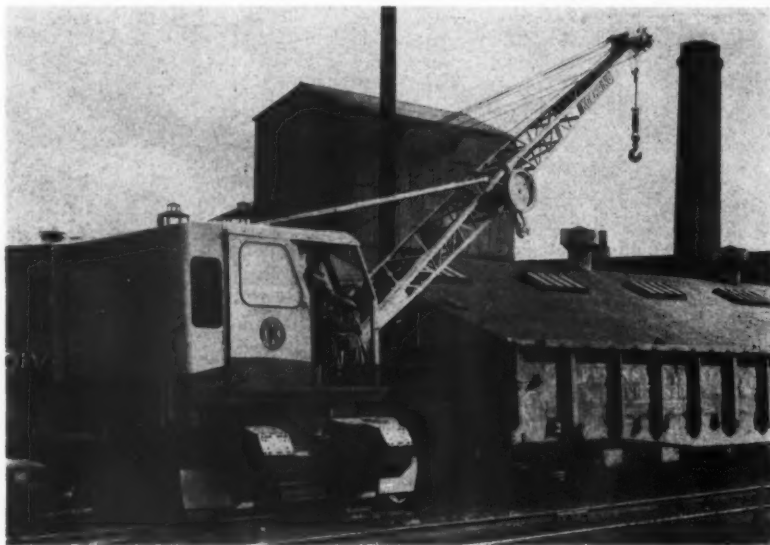
Continental HD260 diesel engine will be used. As reported in detail in *Railway Track and Structures*, September, 1954, the Jackson Track Maintainer is a tamping machine of entirely new design which is adaptable to the dual purpose of either spot-surfacing track or production tamping. It derives its dual nature partly from the fact that it has a split crosshead so that it may be used to tamp under either or both rails, separately or simultaneously.



### CLEARING ATTACHMENT FOR CHAIN SAW

THE HOMELITE Corporation, Port Chester, N.Y. has announced a new, low-cost attachment which converts its Model 17 chain saw into an all-purpose clearing unit. The new attachment is designed to permit faster, easier and more profitable clearing.

It is said to eliminate stooping and bending on the part of the operator while felling trees, and permits the operator to reach out when cutting limbs, without having to go underneath. Logs can be "bucked" lying flat on the ground, since the attachment is fitted with a jaw-grip spike which takes the thrust of the chain, prevents logs from rolling or spinning away and keeps the chain up out of the dirt. The manufacturer claims that small trees can be cut up without the blade pinching or chain jamming.



### IMPROVED RAILROAD CRANE

SEVERAL IMPROVEMENTS to its Railaid crane have been announced by the Koehring Company, Milwaukee, Wis. Improvements include a simple upper machinery arrangement with only two independent major shafts, automatic traction brakes that are

engaged at all times except when traction is applied, and 20-in main drum clutches of the internal-expanding type and equipped with reversible bands. Another feature is the use of four conical hook rollers with an eccentric adjustment which is said to hold the turntable securely to the carbody and resist tipping in all directions.

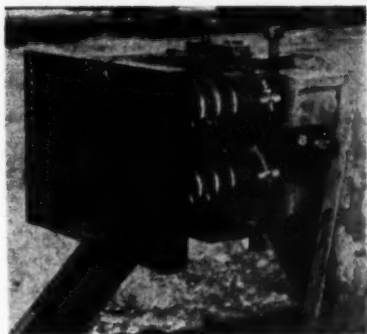
### IMPROVED TIE PAD

AN IMPROVED sealing compound for its Fabco Self-Sealing Tie Pad, which is said to seal out moisture and dirt completely between the pad and tie, has been announced by Fabreka Products Company, Boston, Mass.

The sealer, which is 1/16-in thick, is applied only on the side next to the tie, thereby permitting freedom of movement of the tie plate with no disturbance to the tie bond. The compound is reported to withstand extremes of temperature well and to flow



around the spikes so as to prevent intrusion of water into the spike holes.

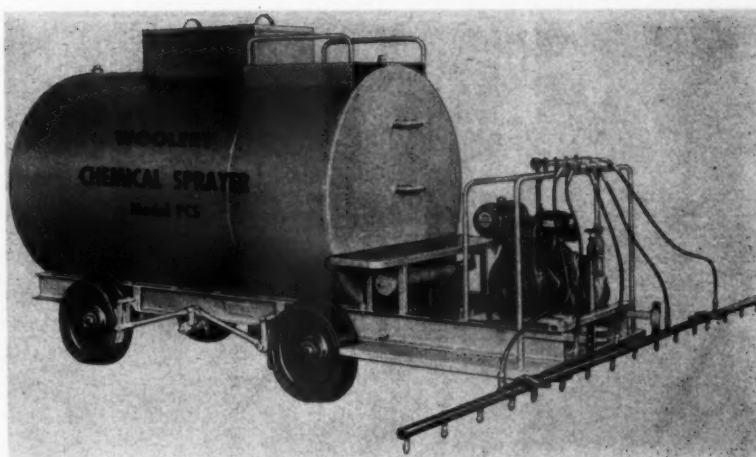


#### RETARDER HEAD

A SHOCK-FREE attachable head that is said to fit almost all models of bumping posts now in track has been announced by the Brice Hayes Company, Chicago. This device, known as the Hayco Retarder Head, is reported to make any bumping post a retarder by eliminating the sharp metal-to-metal contact between coupler knuckles and the post. The retarder head consists of eight AAR specification springs, nested in pairs and seated on a 5½-in thick Fabreeka pad which has a reported break-point of 10,000 psi. The spring nests are of Shelby tubing. The head is of welded plate and bar construction. Six ¾-in bolts are supplied to hold the head in position on the bumping post. It is said that the head can be installed by two men with a track wrench in approximately 30 min. It weighs 225 lb.

#### WIRE ROPE

A NEW LINE of wire ropes with steel cores, which are said to have 15 per cent greater strength than the strongest grade heretofore marketed by that company, has been introduced by John A. Roebling's Sons, Trenton, N.J. The new rope, which will be manufactured in preformed constructions, is said to possess a higher resistance to wear from bending and abrasion. These ropes will be obtainable in sizes ranging from ¼ in to 3½ in for use on shovels, draglines, and anywhere else a wire rope with an independent wire-rope core can be used.



#### PORTABLE CHEMICAL SPRAYER

A RAIL-MOUNTED chemical-sprayer outfit with a 14-ft spray boom has been announced by the Woolery Machine Company, Minneapolis, Minn. The new 1,000-gal portable unit is not self-propelled. It consists of a tank mounted on a 6-in channel frame supported on 2½-in ball-bearing axles with 20-in chilled-face wheels. All four wheels are fitted with shoe-type brakes.

The spray boom is mounted on the front of the frame, and is di-

vided into five sections, any of which can be used independently, as well as all together. The boom is hinged so that it will fold back against the car for clearance. Power for spraying is provided by a 50-gpm pump made entirely of bronze and operated by an 8-hp single-cylinder air-cooled engine equipped with a clutch and speed reducer. Agitation of the chemical mixture in the tank is provided by a pressure jet, entering at a tangent and producing a swiveling motion throughout the tank.



#### IMPROVED TRACTOR-SHOVEL

AN IMPROVED payloader tractor-shovel with a bucket capacity of 1 cu yd payload and ¾ cu yd struckload has been announced by the Frank G. Hough Company, Milwaukee, Wis.

Designated as the Model HFC, the improved unit is a rear-wheel-drive model and features a combination of special new

Hough-built transmission, plus a torque-converter drive. The torque converter is of the self-cooled, three-element type which automatically multiplies torque output of the engine in direct proportion to the load requirements. Reported advantages of the torque converter are a reduction in the amount of gear shifting and clutching and less concentration and effort on the part of the driver.



### CROSSING SCARIFIER

A FRONT-END attachment for the Kershaw Ballast Regulator, Scarifier and Plow, which is designed to scarify and remove material from between the rails and outward to the tie ends at road crossings, has been announced by Kershaw Manufacturing Company, Inc., Montgomery, Ala. This attachment, which is known as the Kershaw Road Crossing Scarifier, is a rotating drum to which scarifier teeth have been attached. It is

mounted on the front end of the Ballast Regulator which is powered through the crossing by a cable winch capable of exerting a 6000-lb pull. As the machine travels through the crossing the scarifying teeth on the rotating drum dig into and loosen the material packed at the ends of the ties and between the rails. The machine then travels back through the crossing under its own power and plows the loosened dirt away from the crossing with the regular reversible plow mounted on its rear end.



### LARGE CRANE-EXCAVATOR

READILY convertible to a dragline, clamshell or lifting crane for a variety of railroad jobs is a new 3-yd shovel announced recently by the Bucyrus-Erie Company, South Milwaukee, Wis.

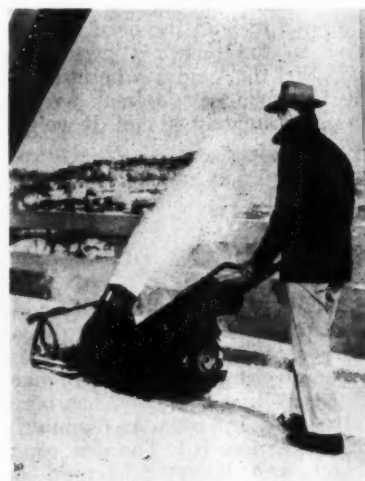
Known as the Model 71-B, the machine incorporates the following

major features: A positive twin-rope crowd with rectangular inside dipper handle; a light boom; fully independent boom hoist; and full air control, except for drum brakes and swing and propelling jaw clutches. Other features include: A torque-converter drive (optional); a one-piece cast-steel revolving frame; a choice of four A-frames;

12 conical hook rollers; four optional crawler mountings; and spring set with air release for all steering clutches and friction digging brakes.

The unit is powered by a 6-cylinder GM diesel engine which supplies power to the horizontal transmission shaft by means of a four-strand roller chain, which can be adjusted by sliding the main engine on its base with two built-in jacks. The engine governor is manually controlled through an armored flexible push-pull cable.

The standard boom for lifting crane dragline and clamshell service is 60 ft, extendible to 110 ft by using removable inserts. All crane-type booms are equipped with a pendulum-type boom-angle indicator mounted in full view of the operator. A pendant-type boom suspension with an 8-part operating line between the A-frame and bridle is available as special equipment. Booms of 90 ft and longer require the use of a high A-frame instead of the standard low frame. All booms have an open-throat upper section which permits rigging of the hoist rope for up to four parts of line without removing the sheave guards. Clamshell equipment includes a Rud-O-Matic tagline on the boom, and dragline equipment features a full-rotating type fairlead.



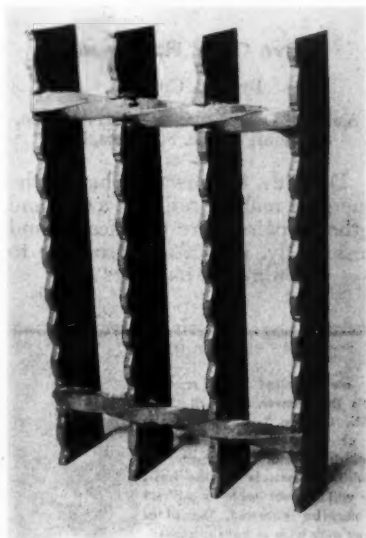
### HAND TRACTOR

A SELF STARTER for the line of Gravely tractors has been announced as optional equipment by Gravely Tractors, Inc., Dunbar, W. Va. The manufacturer states that the starter, which uses a special

starter motor and standard battery, is so attached to the tractor that balance and performance of the equipment is improved. It is expected that this starter will be available in the field shortly.

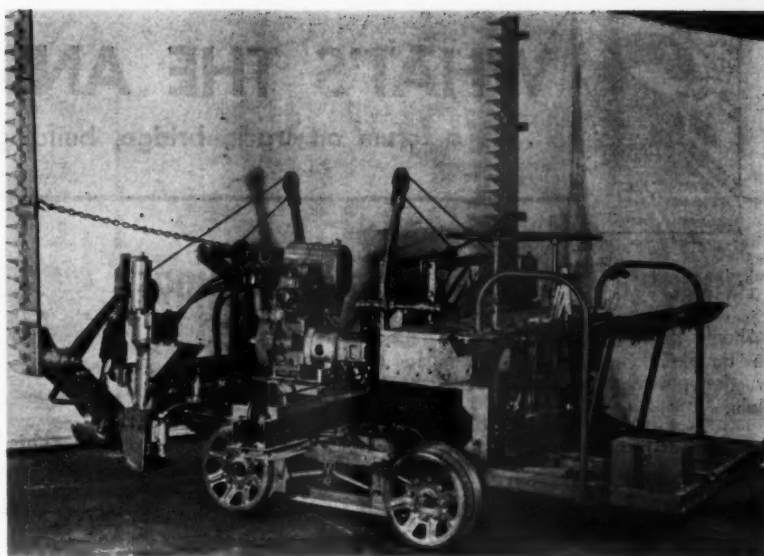
The manufacturer also announces that the Gravelly Model L Tractor is now furnished in three different models; LS-30 with a maximum speed of 3 mph; LI-45 with a maximum speed of 4.5 mph; and LH-60 with a maximum ground speed of 6 mph.

This variation in the ground speed has been accomplished by changing the number of threads in the steel-cut worm gear which drives the bronze gear and which in turn actuates the wheels. It is further stated that the reduction of the number of threads has made it possible to maintain the attachment speed of the LH-60 in all models while reducing the ground speed.



### STEEL GRATING

ELECTROFORGED steel grating of a new type has been announced by the Grating Department, Blaw-Knox Company, Pittsburgh, Pa. The bars have mill-rolled serrated edges which are said to provide an extra margin of safety when the grating is used in areas where walking conditions are hazardous. This is reported to provide an excellent traction surface with comfortable walking conditions. The grating is available in 1, 1½, 1¾ and 2-in by 3/16-in sizes. The crossbars are of twisted steel.



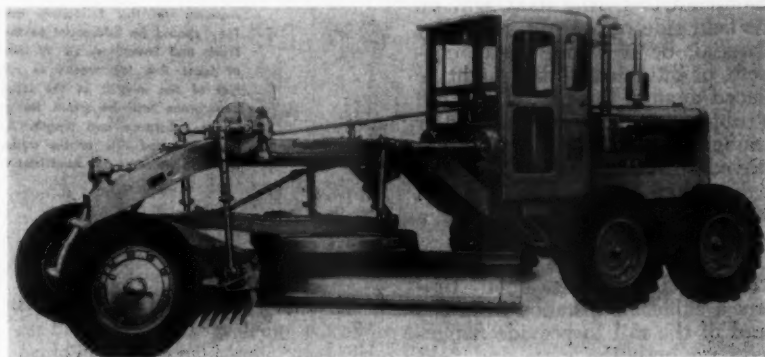
### HYDRAULIC SICKLE DRIVE

FAIRMONT Railway Motors, Inc., Fairmont, Minn., has announced a modification of the M24 weed mower, now to be designated as M24 Series F, that uses hydraulic power to drive the sickles. In order to eliminate all belts and gearing used in the conventional drive, the new machine uses hydraulic motors which are connected directly to the pitman-wheel shaft. The hydraulic system that powers these motors also supplies the power to raise and lower the cutter bars and to tilt the extension beam guide towers.

One centrally located engine equipped with battery ignition and an electric starter drives a double vane-type hydraulic pump. Each half of the pump supplies power to one side of the machine which is said to insure equal sickle speeds regardless of variations in the cutting load.

The hydraulic system also includes a metallic-disc suction filler, multiple valve units, reservoir, micron low-pressure filter and the hydraulic rams.

The standard equipment includes a manually-operated hydraulic turntable and a power sickle grinder.



### IMPROVED MOTOR GRADERS

SEVERAL improvements to its No. 12 motor grader have been announced by the Caterpillar Tractor Company, Peoria, Ill. Increase of horsepower to 115 and speed increases to 4 mph in second gear and 21.5 mph in sixth gear are

among the changes. In addition, the clutch and transmission have increased capacity to match the greater horsepower.

On both the No. 12 and No. 112 models starting is now possible from the operator's seat, by manipulating a single lever.

(More on page 121)





# WHAT'S THE ANSWER?...

... a forum on track, bridge, building and water service problems

## Flangeways for Highway Crossings

Should the crossings between main tracks and highways be "double" flanged or "single" flanged? What type of construction provides the most effective flangeway? Why? Explain.

### Double Flange Crossings

By H. F. DAVENPORT

Supervisor of Track, Illinois Central,  
Corinth, Miss.

Crossings between the main track and highways should definitely be double flanged, and the flangeways should be left open. The most important reason for maintaining open double flangeways is to permit easy visual inspection of the rails. In past years there have been many rail failures in crossings where open flangeways were not maintained. These failures have been attributed to many different causes. However, had open flangeways been maintained on both sides of the rail, the beginning of the failures could have been detected and some of them would have been eliminated.

If it becomes necessary to renew the rail in a crossing, the crossing with double flangeways does not have to be removed.

It is advantageous from a safety standpoint to have a flangeway on the field side of the rail. Most any material, be it wood, metal, concrete, or bituminous, that might be placed against the ball of the rail is subject to expansion, buckling or heaving. Paving material that has heaved sufficiently to be 1 or 2 in higher than the ball of the rail could easily catch the tread of a wheel and cause a derailment.

The most effective flangeways are made by placing "bond" timbers a sufficient distance from the head of the rail to provide flangeways on both the gage and field side of the rail. A minimum flangeway of 2½ in should be maintained on each side. In my opinion treated and preshaped hardwood timbers should be used for this purpose. The timbers should be of sufficient dimension to eliminate the need for shims. Timbers should be bored and fastened to the ties with drive or lag screws. Screws should ex-

tend into the ties 4 to 5 in. This type of construction greatly increases the rigidity of the crossing structure and provides permanent flangeways.

### Uses "Balled-In" Flange Rail

By SUPERVISOR

Urbana, Ill.

Precast and prefabricated crossings need only a single flangeway. Crossings filled with stone, asphalt, road oil, or any material that must be "contained," should be double flanged.

An effective and economical flangeway can be made by "balling-in" a rail against the web of the running rail. These rails can be anchored by "heading-in" spikes

with the heads hooked in slots burned in the base of the balled-in rail. A plank should be placed next to the base of this rail. The flange rail and plank should then be shimmed to the correct height. Under trains, the balled-in rail will move with the running rail but will not disturb the plank. If the plank is prevented from moving the contained material will not crumble or break loose at the edges.

Trains will keep this type of flangeway clean. No labor is required to keep them free from ice and snow during the winter months. The flange rails require no maintenance.

### Leave Open Flangeways

By A. B. CHANEY

Assistant Chief Engineer—Maintenance,  
Missouri Pacific, St. Louis, Mo.

Double flangeways have the merit of making rail inspection and other repairs more practicable and less costly. It is also reasonable to  
(Continued on page 90)

Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you may wish to have discussed.

### To Be Answered In the June Issue

1. What is considered to be the most effective grouting mix for roadbed stabilization? Should the proportion of materials vary under different soil conditions? To what extent? Why? Explain.
2. What safety rules should govern the use of small electric or air tools? Who should be held responsible for the enforcement of these rules? Explain.
3. When laying rail, should the spiking operation be carried out ahead of, or behind, the bolting operation? Why? Explain.

4. Open-deck timber trestles with butt-jointed chords are sometimes surfaced by placing timber shims or a slip or false cap of proper thickness between the caps and the stringers. What is the maximum permissible thickness of shim that may be used before a slip or false cap is required? Explain.

5. About how long must a trackman of average intelligence work before he is able to qualify as an assistant foreman? A foreman? Why? Explain.

6. When designing facilities for the storage of diesel fuel, what factors determine the choice between the installation of a single large storage tank or several smaller tanks? Explain.

## "Let's Look at the Record"

*... As Governor  
Al Smith Used  
to Say*

## IF IT'S LOW COST PER MILE IN VEGETATION CONTROL THAT YOU SEEK . . .

*Look at the figures on*  
**"HERBICIDOL"**

Some 50 railroads use this product. Figures are in our files to prove the savings effected. Our chemists in field work studying all types of weed killer, repeat frequently—"NO TYPE OF CHEMICAL GIVES SO MUCH KILL PER DOLLAR SPENT AS "HERBICIDOL."

You might look at *our* figures. We would like to study *yours*.



**READE MANUFACTURING COMPANY, INC.**

JERSEY CITY 2, N. J.

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## What's the Answer (Cont.)

expect less rail corrosion through double-flanged crossings, thereby minimizing the development of head-and-web separations and other failures usually attributed to corrosion cracks.

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generally most satisfactory under a wide range of conditions as to rail and highway traffic. When fastened with suitable drive dowels the crossing can be removed and replaced at low cost without damage or reducing its smoothness. Open double flangeways decrease the current losses in track circuit territory, and thereby give better broken rail protection than single flangeways where crossing materi-

als maintain contact with the rail.

Filling flangeways with moulding or other material increases the hazard to rail movements, as stone or metal objects falling from rail or highway cars would be more likely to cause a derailment than if the flangeways were open. Open flangeways can be cleaned out as required, thereby insuring a more or less detailed inspection of rail and fastenings.

## Assigning Power Tools to Bridge Gangs

What considerations should govern the permanent assignment of power tools and machines to a gang engaged in the maintenance of timber bridges and trestles? What tools should be so assigned? Explain.

### Answer to Shorter Work Week

By M. W. CLARK

Assistant Chief Engineer, Atlantic Coast Line, Wilmington, N. C.

Bridge gangs assigned to the maintenance and construction of timber bridges and trestles can use power tools to good advantage in connection with any phase of their work. The use of power tools has proved to be the answer to the shorter work week and higher labor costs. Therefore, it follows that power tools should be permanently assigned to gangs engaged in the maintenance and construction of timber bridges and trestles.

It has been found that gangs engaged in timber bridge and trestle work should be equipped with a portable bridge outfit including either electric or air-operated tools. This outfit should consist of a gasoline driven generator or an air compressor and should include a chain saw, wood drill and impact wrench. In addition to the portable bridge outfit it has been found that a small hand-operated derrick car, bridge jacks, jack supports, chains and push-pull jacks are needed.

The use of these tools will materially expedite the work of cutting off wood piling, framing ties and guard rails, drilling holes for bolts and lag screws and for tightening bolts. The derrick car is needed for the handling of such heavy timbers as caps and stringers. The jacks and jack supports are required when it is necessary to jack up the timber deck to replace a defective cap or stringer.

In addition, we have found it is advantageous to use a small track-

mounted crane with bridge gangs when a trestle is being completely reconstructed. This crane is used for removing the old trestle and for handling and placement of new caps, stringers, etc.

In recent years it has been proved conclusively that power tools are a necessity for bridge gangs if they are to keep the cost of bridge repairs to a minimum.

### Assign Small Tools

By F. L. ETCHISON

Chief Engineer, Western Maryland, Baltimore, Md.

Considerations governing permanent assignment of power tools and machines to a gang engaged in maintenance of timber bridges and trestles are:

(1) The number of power tools and machines available for work on the railroad; and

(2) The amount of work requiring the use of power tools and machines.

The first consideration is governed by cost. It is possible and practical to furnish small power tools in sufficient quantity to permit assignment to one gang. Power drills, saws, impact wrenches and drift-bolt hammers are relatively inexpensive and can properly be assigned to one gang. A portable generator and a wheeled air compressor can also be used regularly enough to justify assignment to one gang. One or more highway trucks may be permanently assigned to the gang for transporting men and materials.

Larger and more expensive equipment is generally assigned from a pool to assure greater utilization. Mobile cranes, pile drivers, large compressors, concrete mixers, and such special equipment can best be used in this manner to handle specific jobs.

Assignment of pooled equipment requires close attention by the supervisory forces and good coordination of work. A good maintenance plan and program must also be used to assure that equipment remains in good working condition and is thereby available when needed.

It is my general observation that power tools and equipment are better handled and cared for if they are permanently assigned for use. Pooled equipment may be neglected and not properly maintained by the men who are using them.

### Gangs Fully Mechanized

By FRANK R. WOOLFORD

Chief Engineer, Western Pacific, San Francisco, Cal.

The maintenance gangs involved in this particular type of endeavor are fully mechanized on the Western Pacific. The normal tool complement of these gangs includes saws, wrenches, nail drivers, boring machines and other associated equipment.

This maintenance equipment is primarily powered by air. Air-activated jackhammers are used in breaking off concrete piling, breaking up pavements and other similar duties as encountered in usual B&B assignments. The assignment of an air compressor of adequate size to handle all air-actuated tools expected to be used is necessary to secure maximum production from any mechanized gang in any type of territory. We use compressors varying from 60 to 125 cfm capacity



with each of these gangs as needed.

We are of the opinion that gangs assigned to bridge and trestle work should be protected with air-activated tools and house or like building gangs should be protected with electric-powered tools. In equipping gangs of the latter type we have provided hand-held saws, drills and similar electric-activated equipment. We have followed this

pattern in equipping B&B gangs with air and electric-actuated machines.

To insure the maximum utilization of this equipment we follow the practice of continually policing each gang. If mechanized tools are not required for the project at hand they are re-assigned to other gangs, where the particular machine can be kept in more continuous use. It

is of primary importance that, when machines are once provided, they should all be kept in good working condition at all times. Machines should be allocated with the thought in mind that the gang to which they are assigned will be kept working at projects requiring such tools in order that maximum production may be secured at all times.

## Tamping Long Ties

When installing ties more than 8 ft long, should the length of tie tamped be increased inside of the rail? Outside of the rail? How much? Explain.

### Leave Void at Center

By JOHN L. DELL

Track Supervisor, Baltimore & Ohio,  
Garrett, Ind.

Regardless of length, a crosstie should be tamped to its full length outside and directly under the rail. The distance to be tamped inside the rail may be varied to meet local conditions and opinions.

Unless a void, or at least an area that does not rest solidly on the ballast, is left under the center of each tie, center binding will result from natural settlement after tamping. Center binding, which is accompanied by pumping ties and fouled ballast is most undesirable. It is my opinion that the length of the void at the center of the tie should be about 18 in, or roughly one-third of the length of tie falling between the rails. The actual tamped distance between the rails may then vary from 12 to 18 in, depending on the height of raise and size of ballast used.

Some railroads have adopted high raises as standard practice. The settlement under such high raises is usually considerable. Under these conditions so much ballast rolls under the center of the tie that, in effect, the full length of the tie is tamped. I know of one division engineer who insists that the center of the tie be shovel tamped after a power tamper has tamped raises of as much as 7 in. This would be a sound practice if it were followed up within a short time with a raise of not over 2 in, leaving an untamped void at the center of the tie.

I have often wondered why, with heavier rails, we have not adopted a standard of twenty-two 9-ft ties per rail, instead of the standard

24 ties. The timber required for the longer ties should cost but very little more and there would be a tremendous saving in track fastenings. There would also be a greater support area outside of the rail where it is most desirable. The greatest advantage, however, would be the additional space between ties which would greatly benefit the operation of power tampers.

### Do Not Tamp Center

By SGT. A. S. LANG

Headquarters Company, Transportation  
School, Fort Eustis, Va.

With the usual standard 8-ft tie it is common practice to tamp about 12 in of the length of the tie both inside and outside of each rail. This leaves approximately 3 in at each end and 30 in. in the middle that is not tamped. The reasons for this are well known.

When a track is laid entirely with 9-ft ties the picture is changed somewhat. Then a tie, tamped the same as above, would have 9 in untamped at each end and 30 in untamped in the middle. Such a tie could be tamped 18 in outside the rail and 15 in inside. This would then leave only 3 in untamped at each end and 24 in untamped in the middle.

Of the two alternatives, the second is obviously preferable because of the increased support offered the tie. Exception could be taken to the apparent unbalance of tamping—that is, there is more tie tamped outside the rail than inside. It should be noted in this regard that if the tamping were carried farther toward the center, thus restricting the untamped portion to less than

24 in, the tie would almost certainly become centerbound. In actual practice experienced trackmen usually tamp a little farther outside the rail than they do inside it, thus demonstrating what experience has proved—that eccentricity is desirable.

On the other hand the more complete tamping of the tie also has disadvantages. One of these is that it takes more time to tamp 78 in than it does to tamp 60 in and this time is bound to be reflected in the cost of track maintenance. Whether the added cost will be offset later by savings in maintenance resulting from the stronger track structure is a question that will depend upon many factors requiring evaluation on a more detailed basis.

### Centers Should Be Filled In

By J. H. GIBBS

Roadmaster, Missouri Pacific,  
Arkansas City, Kan.

In my opinion, the tamping of ties from the time the first railroad was built to the present has been and still is one of the major factors in maintaining good, safe, smooth-riding track. There are many still with the railroads who can remember when "shooting track" consisted of raising one side of the track a few inches higher than required, casting in dirt from the end of the ties and then "dropping" the jacks. This was supposed to settle the track to the raise wanted. This method was also practiced on very fine ballast. But the practice never produced a really good job because the centers were not filled in. This left a place for water to collect and resulted in many broken tie ends.

On the all-ballast track section, most ties were tamped on the outer ends and a shovel width inside each rail. In my opinion, this method of tamping was the start of, or resulted in, the millions of soft spots in the  
(Continued on page 94)

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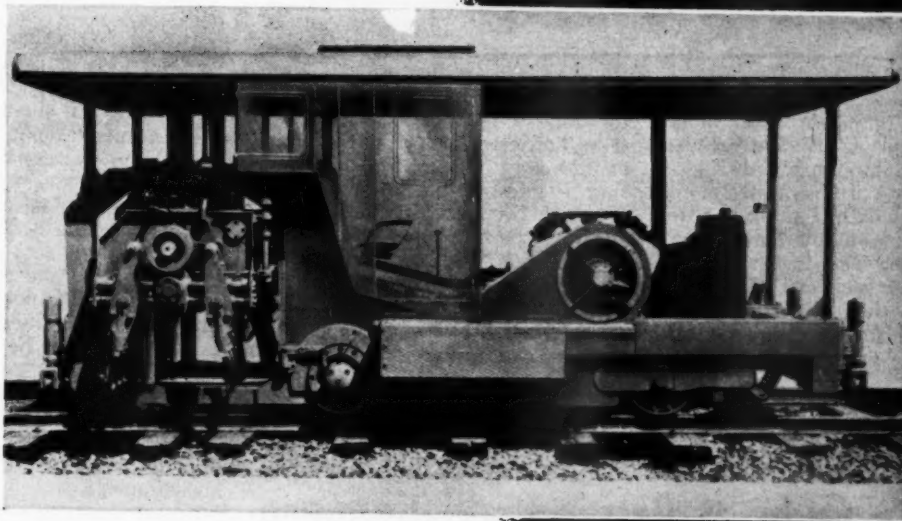
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## What's the Answer (Cont.)

tracks of our railroads. As a result of this method of tamping, I have seen a railroad dig cross sections through a number of soft cuts and spend thousands of dollars for tiling. In this instance, the original earth roadbed had been pushed outward and upward until the dirt at the outer ends of the ties was higher than the tops of these ties. Likewise, the dirt in the center was also up to the top of the ties while directly under each rail the ballast was from 4 to 6 ft deep. This condition resulted in so-called water pockets.

Many times, when talking to a foreman on the line, I have asked him what caused a particular soft spot. In my opinion few of them have come up with the correct answer, "poor tamping, mainly."

Now that we are using ties more than 8 ft in length, I think the tie should be thoroughly tamped on the outer ends and for at least a foot inside of each rail. The centers should then be completely filled in and solidly tamped after the jacks are removed. If the tie

condition becomes poor and the ties are not well tamped in the center many broken-end ties will result when using the longer ties.

Where track conditions indicate soft spots, the ties should be as well tamped in the center as they are at the outer ends.

At one time, a very large elevator was constructed on my territory. We put in three unloading tracks to serve the contractor during construction. These tracks were later used as unloading tracks to serve the elevator. The tracks were constructed over a very soft spot and required more than the usual amount of surfacing. One day, I told the foreman to raise the tracks and tamp the ties solidly for their full length. The foreman asked if that would not make the track centerbound. I replied by asking him if he had ever seen a soft spot in centerbound track. He admitted that he guessed that he never had, to which I replied "neither have I."

When tamping switch ties, I have always followed the practice of tamping the main-line first. I then either remove the jacks or let them down a few notches before tamping the turnout side.

Headblocks are another item that requires careful tamping. They should be thoroughly tamped for the 8 ft under the track, then lightly filled to their outer ends. If this is done, most of them will remain nice and straight and will not "cup up" on the switch-stand end of the turnout.

Nothing is more important than good tamping.

## Increase the Length Tamped

By H. STEELE

General Roadmaster, Ontario Northland, North Bay, Ont.

When ties longer than 8 ft are installed in track their entire length outside the rail should be tamped. The distance tamped inside the rail should be increased to approximately 18 in.

The reason or necessity for using ties longer than 8 ft is to provide more bearing area between the track structure and roadbed. If the length tamped is not increased the purpose of the longer tie would to a great extent be defeated.

## Concrete Curbs at Passenger Platforms

What factors cause concrete curbs at passenger platforms to be pushed out of line toward the track? What measures can be taken in the construction of these curbs to prevent this condition from developing? How may they best be realigned? Explain.

### Platform Foundation Important

By L. P. DREW

Chief Engineer, Union Pacific, Omaha, Neb.

One of the principal causes of concrete curbs at passenger platforms being pushed out of line is the fact that many platforms are merely built without any regard to the principles of engineering design.

Curbs adjacent to passenger platforms are the same as any retaining wall and should be designed accordingly, taking into consideration the character of the foundation, the type of fill material, and including a surcharge of not less than 100 lb per sq ft, and, in cases of heavy trucking, 150 lb per sq ft.

Before platforms and curbs are built, inspection should be made of

the subsoil under the platform to determine if it is suitable for bearing and capable of sustaining the load to be imposed without settlement. If the subsoil is questionable it should be compacted or replaced with a suitable material. The curb should then be constructed in accordance with engineering design and the platform fill made with suitable material properly compacted to produce a very steep angle of repose.

The platform surface should be laid over the top of the curb. This surface should be of a material that will eliminate, insofar as possible, the seepage of moisture into the fill and foundation material below. The platform should also be crowned for proper drainage.

Existing curbs which have pushed out of line, if of proper con-

struction, can be realigned. This can be done by excavating behind the curb, jacking it into line and then shoring it against the track until suitable backfill material can be hand tamped and the platform surface relaid. This surface material should extend over the curb and eliminate the joint often left between the platform surface and the curb.

### Provide Adequate Drainage

By J. S. COOPER

Assistant Chief Engineer, Ontario Northland, North Bay, Ont.

Experience on the Ontario Northland, where extremely low temperatures prevail during the lengthy winter, reveals that the main cause for concrete curbs of passenger platforms being pushed out of line towards the track are the unbalanced forces in this direction imposed by frost action in the subgrade, which is normally from 12 in to 18 in higher than the ballast on the track side of the curb.

(Continued on page 96)



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## What's the Answer (Cont'd.)

By far the best means of preventing such movement is to assure adequate drainage beneath the subgrade. This may be provided by installing perforated pipe at the bottom-of-footing level. One run should be centered beneath the platform and another run should be placed just outside the curb, between track and wall, to intercept platform runoff. Such drains should be graded at least ¼ in per ft in the direction of the outlet.

It is also important to backfill around the pipe with crushed stone to prevent fouling of the drain holes and backfill the remainder of the platform with a fairly clean coarse sand, or gravel, well compacted and laid in 6-in layers to prevent future settlement.

Where adequate drainage is difficult to provide at reasonable cost, outward movement can be prevented by installing 1-in tie rods at approximately 10-ft centers before backfilling. These should be installed 12 in below the top of wall and extend across the width of platform and be fitted with cast-iron washers outside.

Where platform curb deflection has progressed to a point several inches beyond the fouling point for snow-removal equipment, the most satisfactory solution is to replace the curbs entirely, taking the precautions outlined above to prevent future movement.

When the deflection is not too severe and is confined to local areas, such portions may be chipped back and refaced.

## Reverses Design Practice

By H. M. TREMAINE

District Engineer (Retired), Northern Pacific, Spokane, Wash.

The outward movement of the curbs of passenger platforms is almost invariably one of "tipping over." It is not an unusual occurrence. Passenger platform curbs are of two types, precast and cast in place.

The precast type is constructed in short lengths for ease in handling. As its name implies, cast-in-place curbs are constructed in their design location. This type of construction is not recommended at locations where the number and timing of passing-train movements or the yielding nature of the found-



ation material are factors which require consideration. Platforms of concrete poured in place may eliminate the need for curbs.

Concrete curbs are usually designed and installed as a retaining wall without a toe. They are lightly reinforced and usually have a vertical face on the track side and a battered face on the platform side. Platforms are usually crowned to provide for quick runoff of precipitation. The amount of crown is usually determined by local conditions. This crown applies pressure to the top of the curb and in some instances forces it outward toward the track. The cause and extent of this pressure arises from local conditions. These conditions are based on the kind of backfill, type of platform, character of the foundation material in either the platform or track or the heavy loads superimposed on the platform.

The corrective measures are various. The curb may simply be replaced in kind and the old curb reused elsewhere. The curb design may be changed to provide a heavier or more expensive type.

The writer has observed, however, that the usually accepted design of curbs, with the batter on the platform side, invites overturn unless the base of the curb is extended into the foundation material a sufficient distance to provide the needed resistance to counteract the overturning forces. On the basis of

the above observation, the writer has many times reversed accepted design practice and placed the vertical face on the platform side and the battered face on the track side of the curb. Platform curbs so handled, whether at the time of original construction or renewal, have been uniformly successful. It may be stated that by so doing one may get into warm water with the designing section. But the method has worked.

### Recommends Expansion Joints

By PETER R. CICCILLI

Supervisor Bridges & Buildings, Central Railroad of New Jersey, Jersey City, N. J.

A major factor causing concrete curbs at passenger platforms to be pushed out of line towards the track, is the expansion of rigid pavements, constructed against these curbs, where no means have been provided to compensate for expansion and contraction under varying temperature and moisture conditions. Where flexible pavements have been constructed there is no curb displacement.

When curbs are to be constructed in conjunction with the construction of concrete slab platforms it is preferable to place preformed joint filler,  $\frac{3}{4}$  to 1 in thick, against the building foundation.

Where a concrete curb is to be constructed against an existing concrete-slab pavement, provision should be made for placing a strip of preformed joint filler against the existing slab prior to the pouring of concrete for the new curb. Another method would leave a  $\frac{1}{2}$ -in space between curb and slab for the depth of slab. Then, after the concrete has set, fill this space to within 2 in or so from top of the slab with dry sand and fill the remaining depth with plastic expansion-joint compound.

In the construction of new curbs greater stability can be obtained by increasing the base width by at least 50 per cent. This small additional quantity of concrete provides greater resistance against movement of the curb.

The realignment of concrete curbs where no tooled or construction joint has been provided may be more costly than complete removal and replacement with a precast concrete curb. Where such joints do exist and equipment is available that can raise sections of the curbs for realignment, they should be reset on a sub-base at least 3 in thick of a 1:3 cement mortar mix containing just enough water to moisten the mass. The curb should be bedded thereon and provision should be made for a  $\frac{1}{2}$ -in space between the curb and the existing slab and the filling of this space as described above.

## Kinks at Heel of Turnout

What causes rail to kink at the heel of a turnout? How can this be overcome? Explain.

### Keep Rail Anchors Set Up

By J. D. BOGARD

\* Supervisor of Track, Illinois Central, Gilman, Ill.

The cause of the kink is insufficient expansion in the rail either ahead of or behind the switch. When the temperature rises or drops, the rail will expand or contract at some place where there is sufficient room for expansion, or create a stress at some place where there is no expansion. These kinks will appear both in winter and summer when there is a sudden change in temperature if proper expansion is not provided in the rail each way from the switch.

The kinks can be overcome by

keeping rail anchors set up to the ties or by adding additional anchors where serious trouble has been experienced.

### Uses Anti-Creeper Straps

By E. E. LONG

Roadmaster, Chicago Milwaukee St. Paul & Pacific, Austin, Minn.

What causes rail to kink at the heel of a turnout? I believe this is caused by three factors; (1) Bad surface; (2) improper alinement at heel of switch entering siding; and (3) expansion "bunching" at the heel of frog.

We all know that in order to hold

a good line in any turnout, we must have good surface. Main-line surface must also be well maintained coming into the point and heel of the switch. It is very important, when installing a switch, to secure the proper alinement from the heel of the switch through the curvature of the siding. If this is not done, a side thrust will develop which will cause a kink in the main-line side. This is due to the rail trying to get true curvature. This condition can be overcome by not spiking the rail to the ties back of the frog until a good line is made from the siding to the heel of switch. After this has been done the rail from the heel of switch to the short ties of siding can be lined. A good-looking curve from the heel of switch into the siding can be made this way.

The bunching of expansion is a great problem in some areas today due to heavy loads, long trains and high speeds. I have found that, in addition to applying rail anchors



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## What's the Answer (Cont'd.)

to prevent kinking due to expansion at the heel of switch, an economical way of preventing this kinking is by installing three pairs of anti-creeper straps. One pair is installed at each end of the switch on the main line and one pair on the siding; the latter pair is sometimes not needed if traffic is not heavy through the turnout.

The anti-creeper straps are made of iron. They should be  $\frac{3}{4}$  in thick and  $2\frac{1}{2}$  in wide and curved and drilled at one end as they may be fastened to the web of the rail with two 1-in bolts about 5-in apart. The straps should be long enough so that they can be fastened to 12 ties with 6-in drive spikes. The anti-creeper straps when applied should be curved away from the web of the rail so that they will give clearance for the tie plates.

When crossies do not have standard spacing, anti-creeper straps can be taken to the job and the spacing of ties marked on the straps. They can then be correspondingly drilled.

This will save disturbing the ballast. I have used anti-creeper straps on a main-line spring switch and found them very successful; the speed through this switch is under 25 mph.

For speeds above 25 mph, I have found that compression rail anchors will hold the switch from kinking and creeping. This is a very important factor in power switches and railroad crossings. The compression rail anchor is on a clip type with a stud bolt fastened through a tie-plate hole with nut and thread exposed. The nut is tightened against the clip to secure the correct amount of tension. This is checked with the template furnished with the compression anchors. It is important that the nut is not screwed down too far, as this will damage the clip. It is also important when installing the compression anchor that the shoulder of the tie plate fits tightly against the rail so that one end of the clip will rest on the tie plate and the other end on the base of rail.

When compression rail anchors are applied to a turnout the installation should extend about four rail lengths back of the heel of frog and the same distance ahead of the point of switch. An oil preservative is usually furnished with the anchors. This is to be used when the anchors are installed. The

(Continued on page 100)



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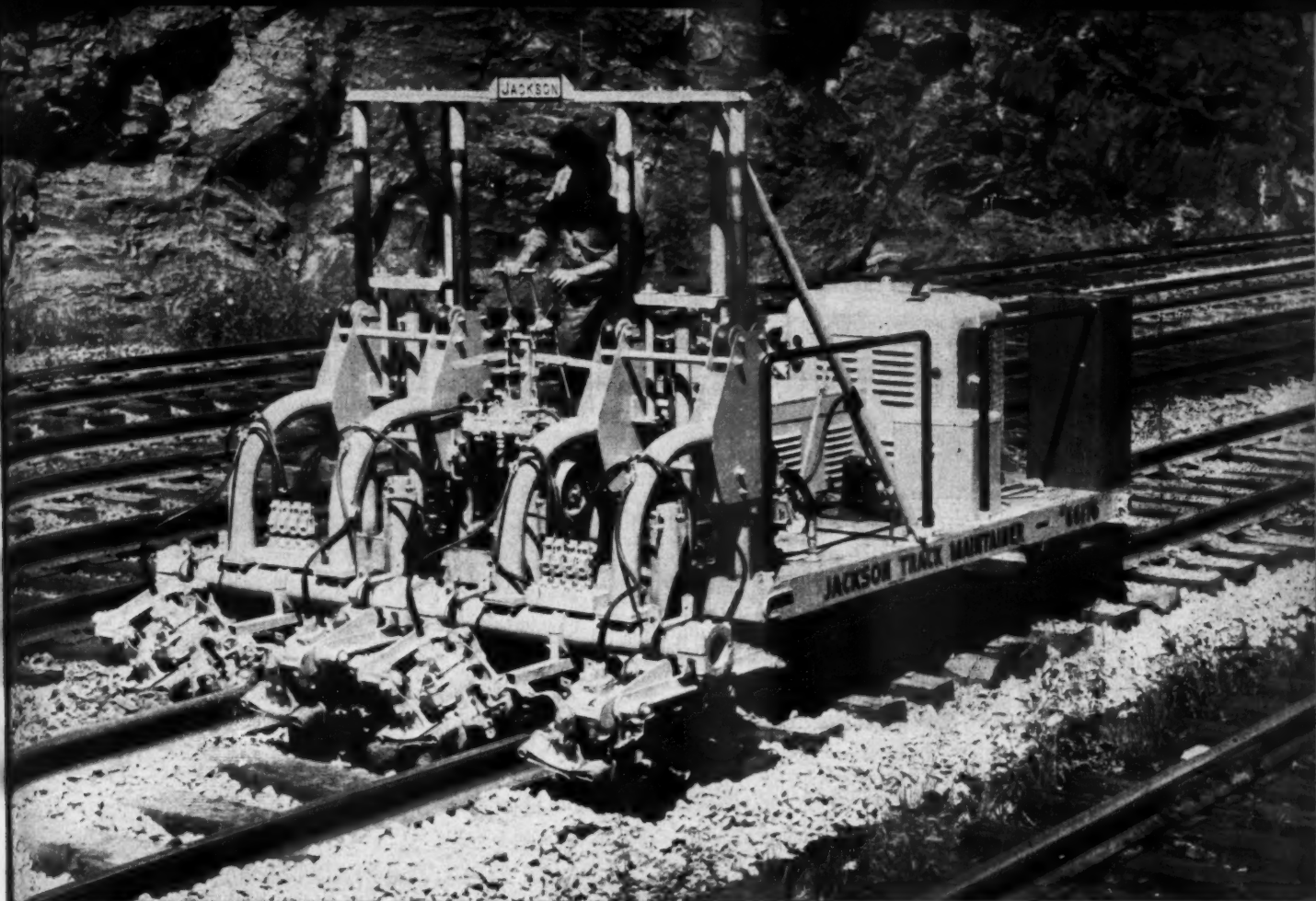
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**What's the Answer (Cont'd.)**

oil preservative should also be re-applied yearly thereafter to keep the threads of the bolt and clip from rusting.

**Use Floating Heel Block**

By GENERAL ROADMASTER

The kink that appears in the heel of a turnout is usually due to using a switch-point heel block that is bolted to the stock rail. With this type of heel block the rail is not permitted to adjust itself to temperature changes. To overcome the undesirable kink at the heel of a turnout the track should be well anchored in both directions from the turnout and also on the diverging track back of the frog. A floating type switch-point heel block which is not bolted to the stock rail and which will permit the adjustment of the rail to temperature changes should be used.

**Proper Anchorage Important**

By NICHOLAS J. VITO

Roadmaster, Delaware Lackawanna & Western, Buffalo, N. Y.

The question of expansion and contraction of rail is controversial because of nature and the conditions that control the movement of rail.

Nature plays a large part because of temperature, subsoil conditions and varying grades. Man plays his part with speed, diesel or steam power, layout, etc. All of these factors determine the number of anti-creepers to be applied to the track structure. Concerning the question, all of the above mentioned conditions should be given consideration. However, it is my considered opinion that layout is a factor contributing to all conditions.

The anti-creeper is the most important appliance in the track structure and yet too many take the application of this appliance lightly. The anti-creeper is an appliance that contributes the most to maintaining good track. It controls the expansion to prevent buckling. It controls the gap in the joint area to reduce batter. It does its part in maintaining good alignment. It is the appliance in the



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## What's the Answer (Cont'd.)

track structure that is least talked about and least maintained. It is an appliance that the manufacturers have done the most to improve in past years. Some of our present-day creepers are made to withstand pressures of 40,000 lb or more per creeper. With these thoughts in mind let us discuss the question.

First, let us consider a crossover layout with its two turnouts. The ends of this crossover have a tendency to pull in opposite directions, each with the current of main-line traffic. The two connecting rails between the switch point and the frog are "free rails." By free rails we mean that they are not tied in coherently with the main track structure. If these rails are not properly anchored they will move in the direction of the current of traffic.

The kinking which takes place actually occurs in the graduated plate area directly behind the heel of the switch point. The reason for this is the movement of the free rails in opposite directions. This causes movement of the graduated plates which in turn causes the rail to kink. In aggravated cases the tie is moved from its bed to a skewed position. This makes the condition even worse and it will usually be found that the frog is also out of line. This tightens the gage at the heel and widens the gage at the toe of the frog.

In single turnouts the condition is very much the same because traffic over one track is heavier than that through the siding or other track and the same action therefore takes place.

There is another reason for kinking at this point. The graduated plates, starting at the heel of the switch points, because their planed surfaces fit the base of the rail snugly do not have the varied tolerance found in an ordinary tie plate. Therefore, any movement of the rail through this area moves the graduated plates causing the rail to kink. I mention this only to reflect the importance of proper anchorage throughout the switch area and in advance of and behind the switch.

I have seen a steel plate or strap with holes bored or punched to receive a track spike laid parallel with the rail on top of the ties which support the graduated plates. This plate or bar is spiked to the top of the ties. This is de-

signed to maintain the spacing between each graduated plate by maintaining the tie spacing in the tie crib. I have also seen small blocks of wood placed between each tie in the crib to maintain proper spacing.

Both methods can and will help prevent the kinking. However, where kinking occurs the real cure is proper track anchorage.

### Prevent "Running" Rail

By C. E. NEAL

Division Engineer, Northwestern Pacific,  
San Rafael, Cal.

The most common and prevalent reason for rail to kink at the heel of the switch point is "running" rail. Rail that has been laid without provision for the proper amount of expansion between the rail ends, will tend to run or creep. As creeping rail moves into a switch it meets with resistance at the heel of the main-line switch point. This is because the switch point and closure rail are bolted through the

stock rail using a heel filler block and four bolts in most instances. This forms a more or less rigid connection between the stock rail, switch point, and closure rail. It is at this point that the forces set up by the running or creeping rail cause the kink by forcing the rail to move laterally. This condition can be completely eliminated by the use of rail anchors applied in sufficient quantity to prevent the running or movement of the rail.

When using anchors it is necessary to provide the proper expansion between the rail ends. This must be done even if it means cutting out a piece of rail and adjusting the expansion by driving the rail before the rail anchors are applied. One should also make certain that any frozen joints in close proximity to the turnout are eliminated.

When these few simple rules are followed, and assuming that the turnout has been properly laid in the first place, kinks will be nonexistent. They will not return as long as the rail is prevented from running into the turnout.



## THE MONTH'S NEWS...

... among railway men—the associations—the suppliers

### Changes in Railway Personnel

#### General

**J. P. Hiltz, Jr.**, chief engineer maintenance of way of the New York Central System, has resigned to become general manager of the Delaware & Hudson, with headquarters at Albany, N. Y. effective March 1. He will be in charge of transportation, maintenance and engineering.

**D. C. Hastings**, division engineer on the Richmond, Fredericksburg & Potomac at Richmond, Va., has been appointed superintendent of the Potomac yard at Alexandria, Va.

#### Engineering

**William R. Rhodes**, assistant engineer in the general engineering department of the Missouri Pacific at St. Louis, has retired after more than 47 years of service.

**R. E. Frame** has been appointed assistant division engineer on the Southern Pacific at Los Angeles.

**T. C. Netherton, Jr.**, has been appointed assistant division engineer on the Philadelphia division of the Pennsylvania at Harrisburg, Pa.

**Asa B. Chapman**, assistant engineer on the Milwaukee at Chicago, retired February 28 after 36 years of service.

**Bert C. Smart**, roadmaster on the Detroit, Toledo & Ironton at Dearborn, Mich., has been promoted to assistant chief engineer at that point. **Howard W. Seeley** has been appointed engineer maintenance of way.

**K. E. Henderson**, assistant superintendent on the Frisco at Newburg, Mo., has been appointed assistant division engineer on the Eastern division with headquarters at Springfield, Mo.

**R. B. Radkey**, assistant engineer—ties and treatment on the Illinois Central at Chicago, has been promoted to engineer—ties and treatment at that point, succeeding **C. D. Turley**, whose death is noted elsewhere in these columns.

**C. J. Bonnevier**, assistant engineer of buildings on the Burlington Lines, has been promoted to engineer of buildings with headquarters as before at Chicago, succeeding **A. H. Simon**, who has retired after 33 years of service. **R. P. Cox**, engineer power plants, replaces Mr. Bonnevier as assistant engineer of buildings.

**L. B. Cann, Jr.**, supervisor track on the Richmond, Fredericksburg & Poto-



### New 8.25 H.P. Grinder Gives Positive Grinding Control

Grinding wheel adjustment of the 540-AB assures stability, prevents chattering, uneven grinding depth. Rolling carriage is secured on main frame by eight concave rollers which grip rolling tubes top and bottom to reduce vibration. Flexible shaft attachment (optional) can be used to slot rails between joints; remove overflow metal; remove excess welds. Grinder has rail skids and extension lift handles for easy handling. Powered by 8.25 H.P. air cooled 4 cycle engine. For complete information on Northwestern's new 540-AB Rail and Frog Grinder, ask your Northwestern Representative or write direct.

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### Railway Personnel (Cont'd)

mac at Fredericksburg, Va., has been promoted to division engineer at Richmond, Va., succeeding **D. C. Hastings**, whose promotion to superintendent is noted elsewhere in these columns.

**Henry J. Langlois**, division engineer of the Champlain division of the Delaware & Hudson, has retired after 37 years of service. The jurisdiction of **E. E. Crowley**, division engineer on the Saratoga division, has been extended to include the Champlain division. **James P. McAvoy**, office engineer, has retired after 38 years of service.

**John Stang**, whose promotion to assistant division engineer on the New York Central at Columbus, Ohio, was announced recently (*RT&S*, January, p. 64) was born at Cleveland, Ohio, July 26, 1922. He received a B. S. degree in civil engineering from the University of Cincinnati, and began his railroad service with the Louisville & Nashville as a rod-



**John Stang**

man at Evansville, Ind., in February 1947. He joined the NYC in August 1947 as a rodman, later serving as instrumentman, both positions at Cleveland, until being appointed assistant supervisor of track at Franklin, Pa., in July 1951. Mr. Stang later served in this same capacity at Sandusky, Ohio, and Cleveland until September 1953 when he was named supervisor of track at VanWert, Ohio.

**C. R. Ulits**, assistant engineer on the Pennsylvania at Philadelphia, has been promoted to chief engineer, Eastern Region, with the same headquarters, succeeding **F. W. Heckel, Jr.**, who has retired. **W. A. Kautz** has been named project engineer at Philadelphia. **F. D. Day**, supervisor of structures on the New York division, has been appointed assistant engineer in the chief engineer's office at Chicago, succeeding **R. D. Riser** who has been transferred to Indianapolis.

**Stephen H. Barlow**, who has been appointed system engineer of track on the Northern Pacific at St. Paul, Minn. (*RT&S*, February, p. 67), was born July 11, 1910 at St. Paul. He began his railroad service with the Chicago, St. Paul, Minneapolis & Omaha in June 1927, remaining with that road until 1929 when



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## Railway Personnel (Cont'd)

he joined a construction company. He returned to the Omaha as an instrument-man in May 1935. In April 1944 he was appointed rail inspector on the Northern Pacific, subsequently being advanced to assistant engineer of track.

**J. C. Miller**, whose promotion to office engineer on the Western Pacific at San Francisco was announced recently (*RT&S*, February, p. 68), was born at Paterson, N. J., June 16, 1918. He attended Tri-State College at Angola, Ind., and began his railroad service with the New York Central in May 1942 as a draftsman at New York City. After serving as an

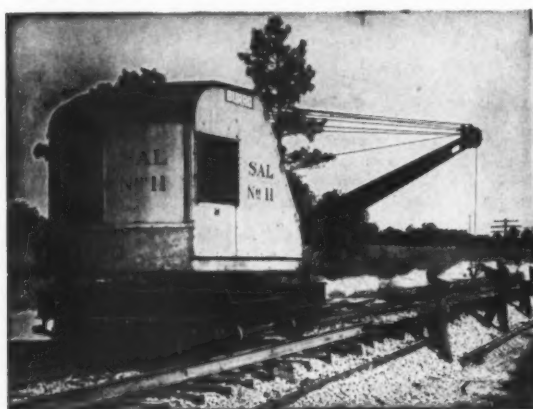
officer in the U. S. Navy Air Corps from June 1943 to May 1947, he was appointed assistant engineer for the Municipal Utility District in the San Francisco area. He joined the Western Pacific as an office engineer in April 1948, later serving as senior draftsman and assistant office engineer in the chief engineer's office at San Francisco.

**Richard J. Lane**, who has been promoted to assistant division engineer on the Rock Island at Rock Island, Ill. (*RT&S*, February, p. 68), was born April 13, 1926, at Princeton, Mo. He attended West Virginia University where he received a BS degree in civil engineering in 1950 and began his railroad service with the Rock Island in November 1951 as a

trainee. After serving at various locations on the system, he was promoted to assistant engineer at Little Rock, Ark., in February 1953. He served as acting roadmaster at El Dorado, Ark., between April 1953 and July 1953, returning to his position of assistant engineer in July 1953.

**A. D. Quackenbush**, who has been appointed principal assistant engineer on the Western Pacific at San Francisco (*RT&S*, February, p. 68), was born at Berkeley, Calif., March 8, 1901. He attended San Rafael high school and began his railroad service with the WP in May 1929, following a variety of engineering experience. After serving as a draftsman between 1929 and 1941, he was promoted to chief draftsman, and in July 1943 to office engineer.

**Lucian A. Durham, Jr.**, whose appointment as assistant engineer on the Norfolk & Western at Norfolk, Va., was announced recently (*RT&S*, January, p. 64), was born August 18, 1920, at Roanoke, Va. Mr. Durham attended Virginia Military Institute where he received a B. S. degree in 1942. He began his railroad



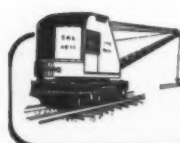
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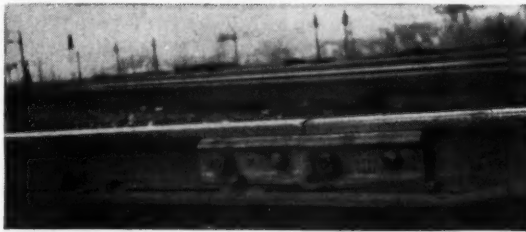


Lucian A. Durham, Jr.

service with the N&W as a chainman in October, 1946. He was promoted to draftsman at Roanoke in April, 1947 and in August, 1951 was named assistant engineer of buildings, the position he was holding at the time of his recent promotion.

**Paul J. Harnish**, whose promotion to division engineer on the Atlantic division of the Pennsylvania at Camden, N. J., was announced recently (*RT&S*, February, p. 68), was born November 8, 1916, at Altoona, Pa. He attended Pennsylvania State College where he received a BS degree in civil engineering in 1938, and began his railroad service with the PRR in July 1939 as an assistant on the engineering corps. He was promoted to assistant supervisor track on the Pittsburgh division in August 1941, later serving in the same capacity on the Middle division. Mr. Harnish was appointed supervisor of track at Orrville, Ohio, in October 1944, later holding the same position at Alliance and South Chicago. In December 1951 he was promoted to assistant division engineer on the Panhandle division at Pittsburgh, Pa.

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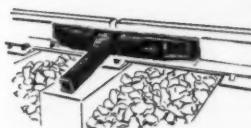
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## Railway Personnel (Cont'd)

**R. F. Garner**, who has been appointed division engineer on the Boston & Maine at Greenfield, Mass. (*RT&S*, February, p. 68), was born at Providence, R. I., August 28, 1916. He attended Brown University from 1935 to 1940, joining the B&M as a chairman on the Pittsburgh division in July 1940. He was promoted to rodman in October of that year and served in this capacity until entering military service in February 1941. After leaving the service in December 1945, he returned to the B&M as a student supervisor on the New Hampshire division. He

was promoted to assistant track supervisor in July 1947, and after serving at several points, was named assistant engineer in July 1948. He was promoted to assistant division engineer in July 1952.

**J. Bryan McKerley**, division engineer on the Central of Georgia at Columbus, Ga., has been promoted to assistant chief engineer at Savannah, succeeding **George A. Belden**, whose death is noted elsewhere in these columns. **Farrell Dodgen**, track supervisor at Leeds, Ala., succeeds Mr. McKerley as division engineer at Columbus.

Mr. McKerley, a native of Barnwell, S. C., is a civil engineering graduate of Princeton College. He joined the C of G

as a draftsman at Savannah in April 1927. He became assistant engineer in October 1928, and was promoted to track



**J. Bryan McKerley**

supervisor on the Columbus division in September 1945. Later that same year he was transferred to Savannah as supervisor of bridges and buildings, subsequently serving in that same capacity on the Macon division. He was promoted to division engineer in January 1953.

Mr. Dodgen was born in Birmingham and began service with the C of G in November 1929 as a track laborer. He was later advanced to apprentice foreman, section foreman and apprentice track supervisor before being appointed track supervisor at Leeds in February 1951.

**Charles E. Fleetham**, who has been promoted to division engineer on the Rock Island at Rock Island, Ill. (*RT&S*, February, p. 67), was born at Minneapolis, Minn., June 23, 1905. He attended St. Thomas College and the University of Minnesota, beginning his railroad service



**Charles E. Fleetham**

with the Rock Island in 1943 as an instrumentman at Des Moines, Iowa. He later served as assistant engineer until being appointed division engineer in 1952 at Cedar Rapids, Iowa. He was named district bridge and building engineer at Des Moines in 1953, serving in that capacity until his recent promotion.

**H. W. Jenkins**, assistant to chief engineer on the New Haven at Boston, Mass., has been appointed to the newly created



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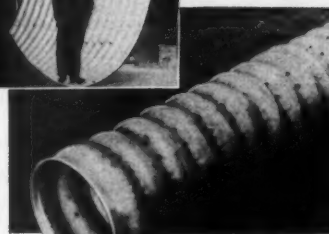
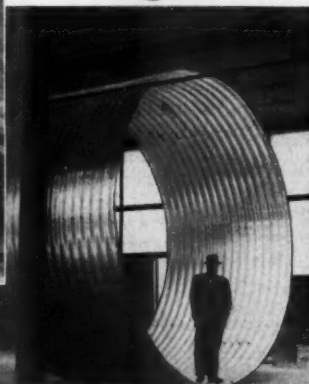


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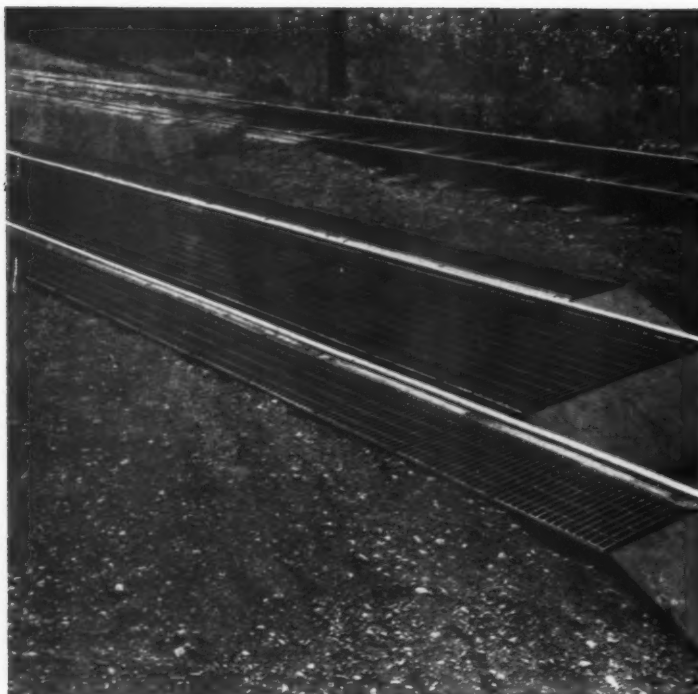
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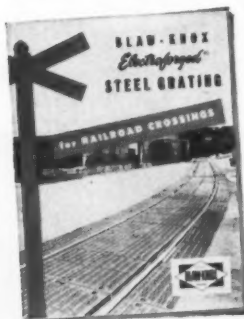
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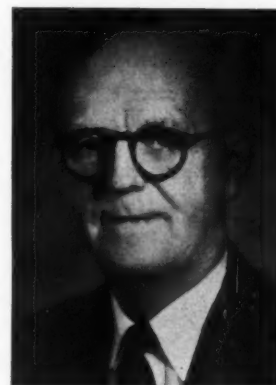
### Railway Personnel (Cont'd)

position of assistant chief engineer at that same point. **W. H. Haggerty**, roadmaster at New Haven, has been named to the newly created position of engineer of track at that point, and **A. E. Cawood**, assistant bridge engineer at New Haven, has been appointed to the newly created position of engineer of structures.

Mr. Jenkins began his railroad career in 1927 as a chainman at Boston, later



H. W. Jenkins



W. H. Haggerty



A. E. Cawood

serving in various positions on the engineering corps. In 1936 he was promoted to assistant to B&B supervisor at Provi-





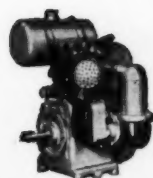
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In the design, manufacture and practical application of engine-powered maintenance-of-way equipment . . . heavy-duty serviceability and low-cost maintenance of the power unit are primary considerations.

The significance of the "MOST H. P. HOURS" trade-mark which appears as a Decal on all Wisconsin Heavy-Duty Air-Cooled Engines is important to you, as a user of power equipment, because it states a fact that is being constantly proved by actual service records. It's a symbol of dependable, economical Power Performance and Long Engine Life under your kind of operating conditions, as applied directly to the time- and labor-saving machines that are so essential to maintenance-of-way service.

Wisconsin heavy-duty design and construction provides the inbuilt stamina that stands up to hard usage in the hands of your track gangs. File-hard, self-cleaning tapered roller bearings at BOTH ends of the crankshaft assure smooth running as well as maximum protection against bearing failure. A gear-driven, high tension OUTSIDE Magneto equipped with Impulse Coupling assures easy starting in any weather at low cranking speed, positive ignition and easy accessibility. Foolproof AIR-COOLING at all temperatures from sub-zero to 140° F. keeps the work moving in any weather . . . and a complete range of sizes from 3 to 36 hp. supplies Power to fit the Machine and the Job without power waste.

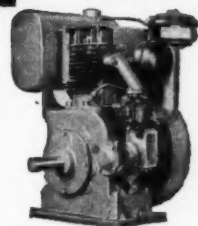
These are a few of the reasons why it pays to specify "Wisconsin Engine Power" for your maintenance-of-way equipment as well as for general utility power service. For more detailed data, write for Bulletin S-164.



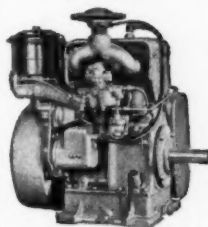
Models ABN, AKN  
3 to 6 hp.



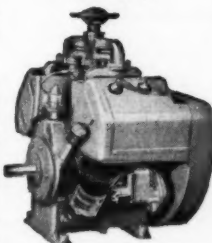
Model AEN  
4.5 to 8.25 hp.



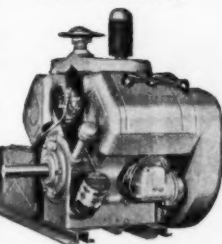
Models AFH, AGH, AHH  
6 to 9.2 hp.



2-cylinder Models TE, TF, TFD  
7.2 to 15 hp.



V-type 4-cylinder Models  
VE4, VF4, 15 to 25 hp.



V-type 4-cylinder  
Model VG4D, 25 to 36 hp.

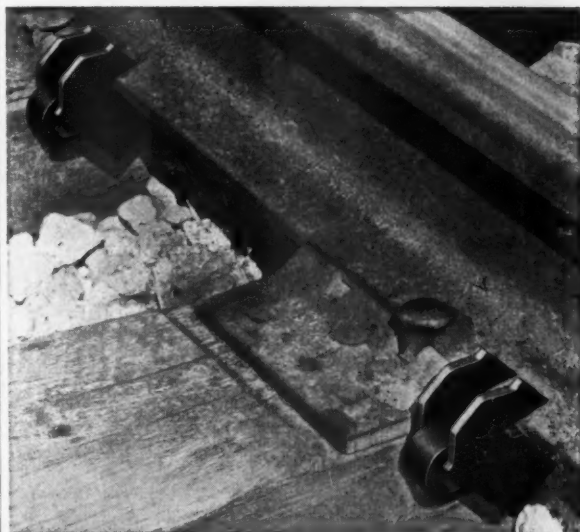


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The large clamp forms a double section which has two functions. First, it forms a set of double jaws that grip the rail more tightly than is possible where spring tension alone provides the gripping force. Second, the clamp provides a greater bearing surface to rest against the tie.

Both clamp and spring are formed from high carbon steel, tempered and hardened to precision standards developed in more than a century of metallurgical experience in building high quality tools for the railroad and other industries.

### OTHER TRUE TEMPER RAIL ANCHOR FEATURES

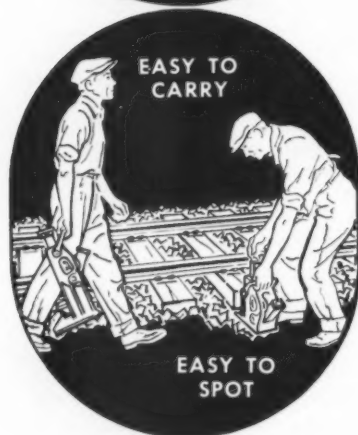
- Apply with any standard striking tool
- Not affected by frozen ballast
- Greater protection in case of derailments
- Impossible to overdrive
- Better fit on worn or corroded rails
- Easy and safe to re-install

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### TRUE TEMPER RAILWAY TOOLS





## Why section gangs work faster with these two aluminum track jacks

Ask Tony or Joe or any of the boys who worked with either of these Duff-Norton aluminum track jacks, and you'll get the same story. They like them because they're 25% and 33 1/3% lighter than jacks with malleable iron housings. Being lighter in weight they are easier to carry and spot. With less energy expended in handling unnecessary dead weight, the gang is able to do more work.

Write the world's oldest and largest manufacturers of lifting jacks for TRACK JACK Bulletin AD18-F, The Duff-Norton Manufacturing Co., P. O. Box 1889, Pittsburgh 30, Pa. Canadian plant—Toronto 6, Ontario.

1. No. 517BA Single Acting Surfacing Jack can raise 15 tons 5 inches, weighs only 31 lbs.
2. No. 117A Single Acting Track Jack can raise 15 tons 13 inches, weighs only 46 lbs.

# DUFF-NORTON *Jacks*

"Giving Industry A Lift Since 1883"

## Railway Personnel (Cont'd)

dence, R. I., and in 1938 was named general B&B foreman. He became assistant B&B supervisor in 1939, and was promoted to B&B supervisor in 1942. Mr. Jenkins was promoted to assistant division engineer in 1946, becoming assistant to chief engineer in 1952.

Mr. Haggerty started railroading in June 1910 as a timekeeper on the New York district. He was promoted to assistant foreman in 1912 and to foreman in 1916. He was named track supervisor at Hartford, Conn., in 1923, later serving in this same capacity at New Rochelle. He was advanced to general track supervisor in 1950.

Mr. Cawood joined the New Haven in 1935 as a rail inspector, becoming structural draftsman in 1939. He was promoted to bridge inspector in 1940, advancing to assistant bridge engineer in 1946.

H. F. Kimball, who has been named assistant chief engineer—system on the Burlington (RT&S, February, p. 68), began his service with that company, at LaCrosse, Wis., in 1917 as a rodman.



H. F. Kimball

He later served as a draftsman and instrumentman before being advanced to division engineer at Hannibal, Mo., in 1943. He was promoted to hydraulic engineer at Chicago in 1946.

Marcus L. Johnson, whose promotion to bridge engineer—system on the Bur-



Marcus L. Johnson

RAILWAY TRACK and STRUCTURES

# Power ballaster cuts tamping time 87½% ... with help of TIMKEN® bearings

IT takes a 12-tool hand air tamping gang a full day to do 500-600 feet of track. Yet just one man, operating one of these Pullman-Standard power ballasters, can finish nearly the same amount of work in only one hour. Mounted in the wheels, Timken® bearings give trouble-free operation in helping keep these machines on the go.

When tamping bars drive into the ballast, they raise a lot of dirt and

dust. But Timken bearings keep housings and shafts concentric, making closures more effective. Damaging dust can't get in. Grease can't get out. Lubrication is required only after long intervals.

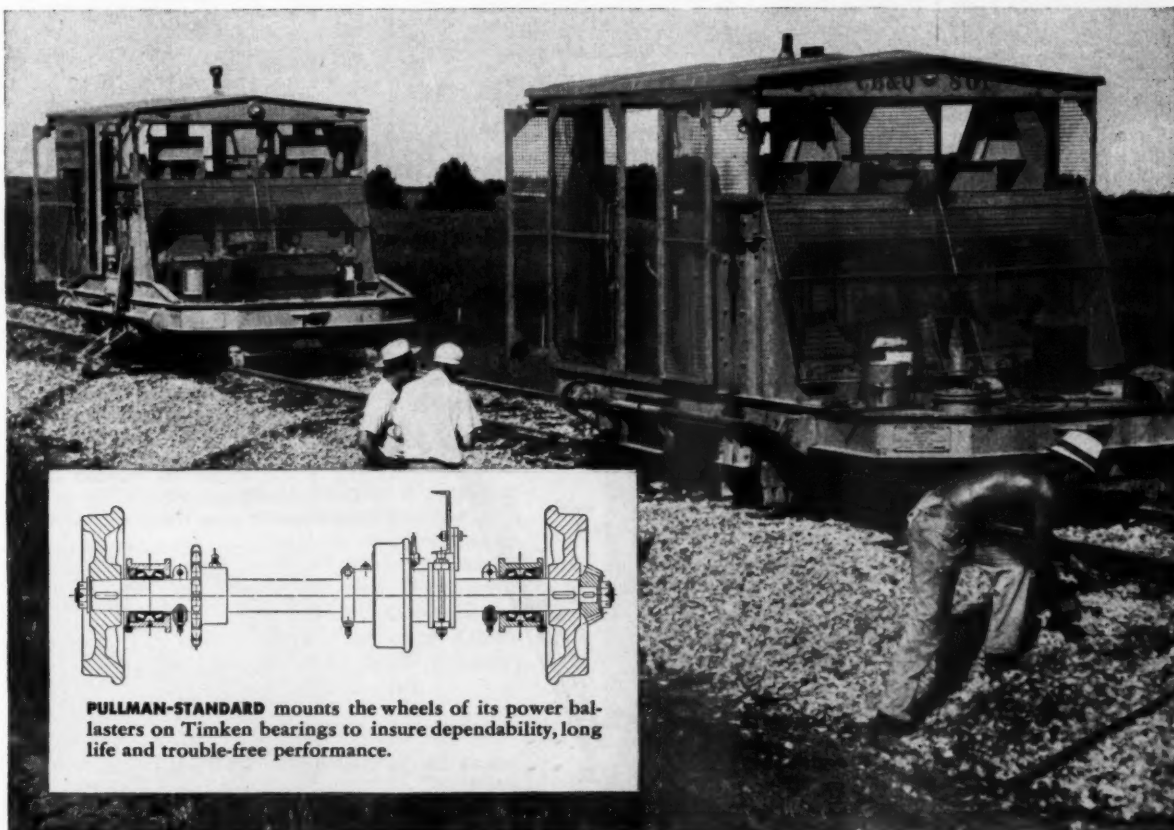
Timken bearings lick another problem because their tapered construction enables them to take any combination of radial and thrust loads. They handle the continuous radial load of the ballasters plus

sudden thrust loads imposed on curves as these machines scoot to and from the job at 25 miles per hour.

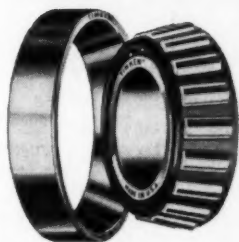
To get a long, trouble-free operation on the machines you build or buy, always specify Timken tapered roller bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



PULLMAN-STANDARD mounts the wheels of its power ballasters on Timken bearings to insure dependability, long life and trouble-free performance.



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TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**



## WE MAKE OUR OWN STEEL

The special grade alloy steel which gives Timken bearings their strength and resistance to wear is made in our own steel mills.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

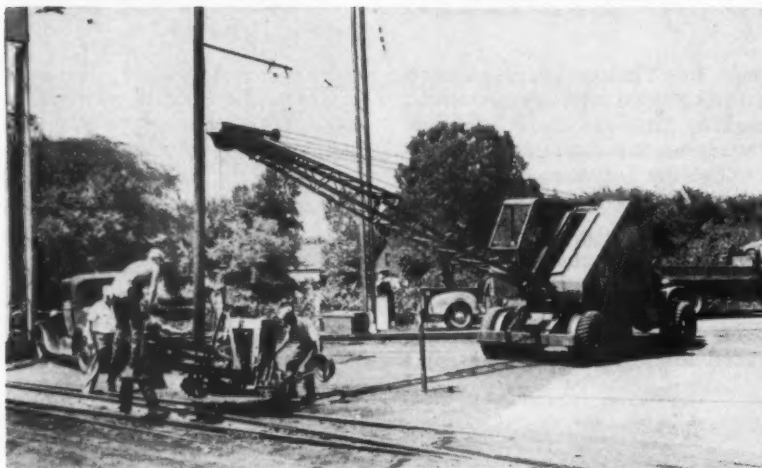
RAILWAY TRACK and STRUCTURES

MARCH, 1955

111



# Bantam Spots 1500 lb. Adzer in 1½ Minutes...



## ...on Track Job for W.C.F. & N. Railroad

To solve their adzer machine handling problem, which formerly required 8 to 10 men a quarter of an hour to remove and replace on the rails, C. V. Formaker, Supt. of Const. and Maint., brought in a high-speed, truck-mounted BANTAM and now does the same job with 1 operator and 2 guide men in just 1½ minutes.

### Saves on Other Jobs, Too

Formaker also reports that their

BANTAM, with 6-ton capacity, has cut costs and saved manpower on many other kinds of lifting and excavating jobs. He claimed: "We add whole days to our work schedule on widely scattered jobs like bridge building and repair... track relaying... cleanup and utility work... yard stockpiling, with our BANTAM. It's the handiest 'one-man' work gang we have."

Find out how you, too, can cut job costs and save manpower for your road, with a versatile high speed BANTAM, working with any of NINE FAST CHANGE ATTACHMENTS.

### A BANTAM easily handles any of these jobs:

- Bridge Repair
- Leveling Right-of-Way
- Pile Driving
- Lifting Ties and Rails
- Repairing Grade Crossings
- Widening Banks
- Removing Tracks and Debris
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BANTAM is also available as ¾ cubic yard crawler.



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| <input type="checkbox"/> Clam                               | <input type="checkbox"/> Backfiller    |
| <input type="checkbox"/> Back Hoe                           | <input type="checkbox"/> Magnet        |

## Railway Personnel (Cont'd)

lington, was announced recently (*RT&S*, February, p. 68), joined the Burlington as a bridge detailer at Chicago in 1916. He was appointed chief designer in the bridge department in 1931, becoming assistant bridge engineer in 1939.

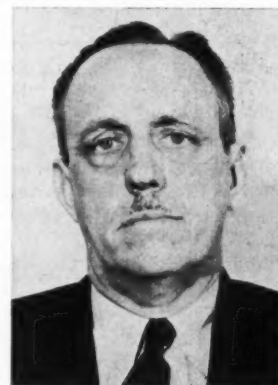
Stephen J. Owens, whose appointment as assistant to chief engineer on the Burlington at Chicago was announced recently (*RT&S*, February, p. 68), began his career with the Burlington in 1936 as an instrumentman at Lincoln, Neb.



Stephen J. Owens

He was later promoted to roadmaster at McCook, Neb., serving in the same capacity at Omaha. After serving as assistant engineer at Chicago and division engineer at Casper, Wyo., he was promoted to district engineer, maintenance of way at Omaha in 1953.

Baron Laubenfels, who has been named assistant chief engineer, Lines East, on the Burlington at Chicago (*RT&S*, February, p. 68), began his railroad service with the Burlington as a rodman in 1929. Subsequently, he served as a signal helper,



Baron Laubenfels

B&B laborer and instrumentman at various locations until being named project engineer at Chicago in 1940. He was advanced to division engineer at Lincoln, Neb., in 1944, and became principal assistant engineer at Chicago in 1947.

F. N. White has been promoted to supervisor of track on the Chicago divi-

Keep "IN SERVICE" ties

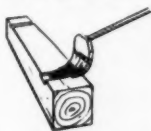
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**4 WAY CHEMICAL ACTION** of this proven deep-penetrating wood preservative combats spike pull, reduces plate cutting, hardens wood, seals out moisture and grit and actually REINFORCES decay prevention quality of creosote in ties. Just BRUSH IT ON tie plate areas of new ties, readzed

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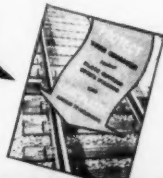
surfaces of used ties, and on splits and derailment scars of in-service ties. Then, they'll LAST YEARS LONGER and drastically cut costs. Recommended for M/W Engineers from coast to coast.

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## Railway Personnel (Cont'd)

sion of the Pennsylvania with headquarters at Logansport, Ind. **L. P. Ruth** has been named supervisor of track on the Southwestern division at Spencer, Ill. **G. H. Gaut** and **R. D. Johnson** have been appointed assistant supervisors of track on the Philadelphia division with headquarters at Enola, Pa., and Downingtown, respectively. **W. C. Wettach** has been named assistant supervisor of track on the Eastern division with headquarters at Freedom, Pa., and **L. C. Carpenter, Jr.**, has been appointed assistant supervisor of track on the Columbus division at Columbus, Ohio. **G. S. Lehman** has been

named supervisor of track on the Middle division with headquarters at Newport, Pa., succeeding **T. C. Netherson, Jr.**, whose promotion to assistant division engineer at Harrisburg is noted elsewhere in these columns. **P. M. McMeans**, general foreman on the Pittsburgh division, has been appointed assistant supervisor track at Chicago, succeeding **M. H. Barber**, who has been transferred to Pittsburgh, Pa. replacing **B. F. Overbey**, who has entered military service.

**John E. Solarski**, who has been named assistant chief engineer on the Long Island at Jamaica, N. Y. (*RT&S*, January, p. 66), was born May 2, 1907, at New York City. He attended New York Uni-

versity where he received the degree of civil engineer in 1929. Following his graduation he began service with the



**John E. Solarski**

Long Island as a rodman in the chief engineer's office. After serving as a levelman and transitman at Newark, N. J., he was promoted to section engineer on grade-crossing projects in 1940. In 1947 he was appointed draftsman in charge in the New York office, later being advanced to office engineer, and in 1953 to engineer of construction at Jamaica.

**C. E. Gipe**, who has been named engineer maintenance of way on the Pennsylvania at Pittsburgh, Pa. (*RT&S*, February, p. 68), was born at Columbia City, Ind., December 3, 1905. He attended Purdue University from 1924 to 1928, and began his railroad service with the

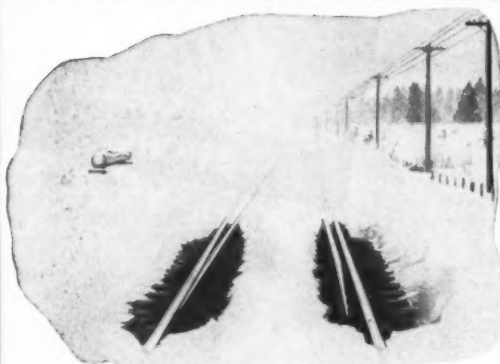


**C. E. Gipe**

PRR in May 1929. He was promoted to assistant supervisor of track at Olean, N. Y., in 1934, later serving in the same capacity at Canton, Ohio. He was advanced to supervisor of track at Kane, Pa., in 1937, subsequently holding this same position at Warren, Pa., Aspinwall, Pa., and New York City. He was promoted to assistant division engineer at Ft. Wayne, Ind., in 1944 and to division engineer at Erie, Pa., in 1945. He later served as division engineer at Ft. Wayne, and Pittsburgh.

**Jack R. Williams**, whose promotion to assistant engineer of bridges on the Rock Island at Chicago was announced recently (*RT&S*, February, p. 67), was born at Barbarton, Ohio, March 14, 1923. He

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THE CHOICE OF MOST RAILROADS WHICH USE PROPANE FOR THEIR EASTERN SWITCH HEATERS IS DEPENDABLE SUBURBAN PROPANE GAS SERVICE, BECAUSE IT OFFERS MANY ADVANTAGES:

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## Self-propelled 205 runs on rails saves travel time between jobs...

Where conventional excavators and cranes have to be moved off-track over long, round-about routes from one job to the next, the Koehring 205 takes to the rails. RailAid powers its own rail-propulsion car . . . travels on-track at speeds up to 20 m.p.h.

You can send it anywhere along the line, at a moment's notice, to do any digging, lifting or material-handling jobs: cleans ditches, widens embankments . . . loads, unloads cars, stockpiles ballast, coal . . . repairs trestles, drives piles, lays rails . . . handles scrap or salvage.

Because all travel is by rail, crawler life is considerably increased. Yet, you have complete flexibility for working on or off-track.

### Clears the track in 10 minutes

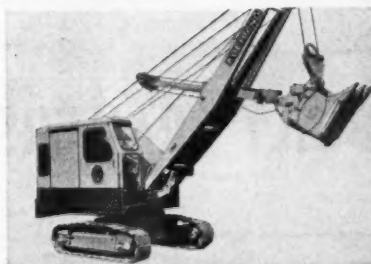
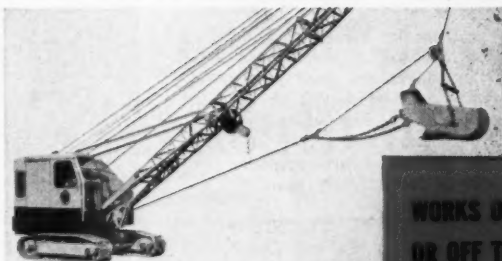
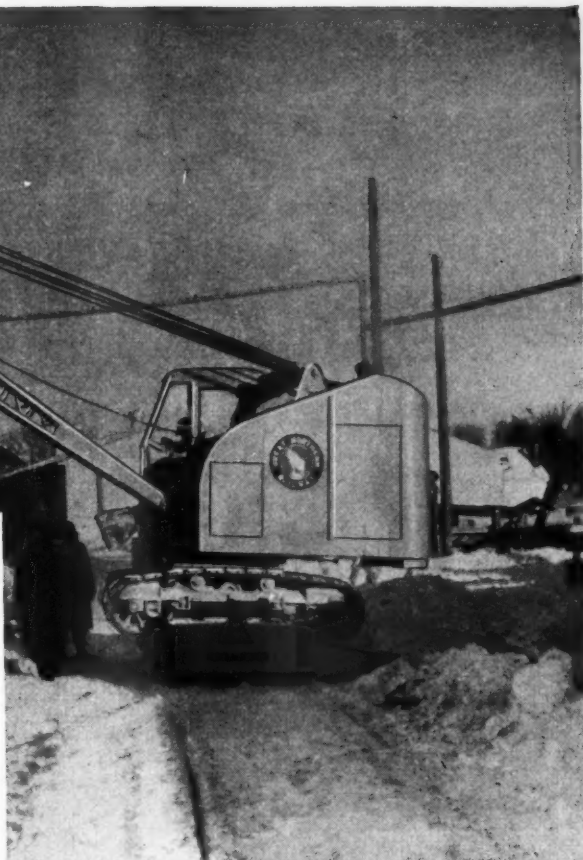
Crane loads or unloads itself on ramp-equipped car in less than 10 minutes. Sets car on or off-track . . . clears the right-of-way for normal through traffic. Work of RailAid and crew is uninterrupted during entire shift. Crane safely lifts 6.9 tons from the car, 8.9 tons on ground . . . readily converts to magnet crane, pile driver, clamshell, dragline, ½-yard shovel or hoe. Learn more about this versatile on-and-off-track RailAid . . . write: Koehring Co., Milwaukee 16, Wisconsin.

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OR OFF THE  
PROPULSION  
CAR WITH  
ALL STANDARD  
ATTACHMENTS:**

**fit crane  
magnet crane  
pile driver  
clamshell  
dragline  
shovel  
hoe**

## Railway Personnel (Cont'd)

attended the University of Colorado where he received a BS degree in civil engineering in June 1946. Mr. Williams began his railroad service with the Illinois Central in April 1950 as a masonry



**Jack K. Williams**

inspector. He joined the Rock Island in October 1950 as a draftsman in the bridge department, and was promoted to assistant to engineer of bridges in September 1953.

## Have Breakfast With Us!

Again this year *Railway Track and Structures* and *Railway Age* are sponsoring a "breakfast bar" at the Palmer House, Chicago, during the AREA convention. From 8:00 to 9:45 each morning during the convention, fruit juices, rolls and coffee will be served at the Rendezvous Bar on the convention floor of the hotel. Railroad and supply men attending the convention are cordially invited to join us for an early morning "snack."

THE STAFF  
*Railway Track  
and Structures  
Railway Age*

**Walter E. Spade**, who has been appointed assistant bridge engineer on the Burlington at Chicago (*RT&S*, February, p. 68), began his railroad service with



**Walter E. Spade**

the Burlington as an assistant to the bridge engineer at Chicago in 1950. He held this position until his recent promotion.

**E. W. Niblet**, who has been named engineer of buildings of the Chesapeake & Ohio at Richmond, Va., (*RT&S*, Jan-



**E. W. Niblet**

uary, p. 64), was born at Gumboro, Del., April 8, 1892. He attended Secondary College in 1914 and the Institute of

Design (Beaux Arts) in New York. He began his railroad service with the C&O in January 1924 as a draftsman and designer. In 1928 Mr. Niblet was named assistant engineer, serving in this position until June 1946 when he was appointed assistant engineer of buildings.

## Track

**Charles M. Lumpkin** has been appointed assistant track supervisor on the Southern with headquarters at Utah, Ala., succeeding **Quinnie W. Houchin**.

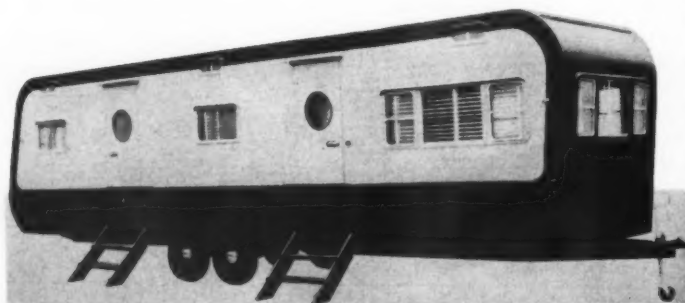
**William H. Koch**, roadmaster on the Susquehanna division of the Delaware & Hudson, has retired after 49 years of service. **William H. McNall**, track supervisor on the Saratoga division, has retired after 43 years of service.

**T. D. Styles**, assistant supervisor track on the Richmond, Fredericksburg & Potomac at Richmond, Va., has been promoted to supervisor track at Potomac Yard, Alexandria, Va., succeeding **J. R. Talbott, Jr.**, who has been transferred to Richmond, replacing **C. E. Whitmore, Jr.** Mr. Whitmore has been transferred to Fredericksburg, Va., to replace **L. B. Cann, Jr.**, who has been promoted to division engineer.

**P. W. Scribner**, track supervisor on the Erie at Campbell Hall, N. Y., has been transferred to Jamestown, N. Y., to replace **J. W. Smith**, who has been appointed general foreman on the Marion division at Hammond, Ind., succeeding **E. L. Stanton**, who has been assigned other duties. The position of track supervisor at Campbell Hall has been abolished, and that territory included under the jurisdiction of **A. F. Doyle**, track supervisor at Goshen, N. Y.

**K. H. Carl**, whose promotion to roadmaster on the Rock Island at Galhart, Tex., was announced recently (*RT&S*, February, p. 71), was born at Goodland, Kan., August 22, 1912. He began his railroad service with the Rock Island as a laborer in 1936, later serving as a machine operator until being appointed section foreman in 1944. He was promoted to assistant roadmaster and track supervisor in April 1953.

# CUSTOM-BUILT TRAILERS FOR M/W GANGS . . .

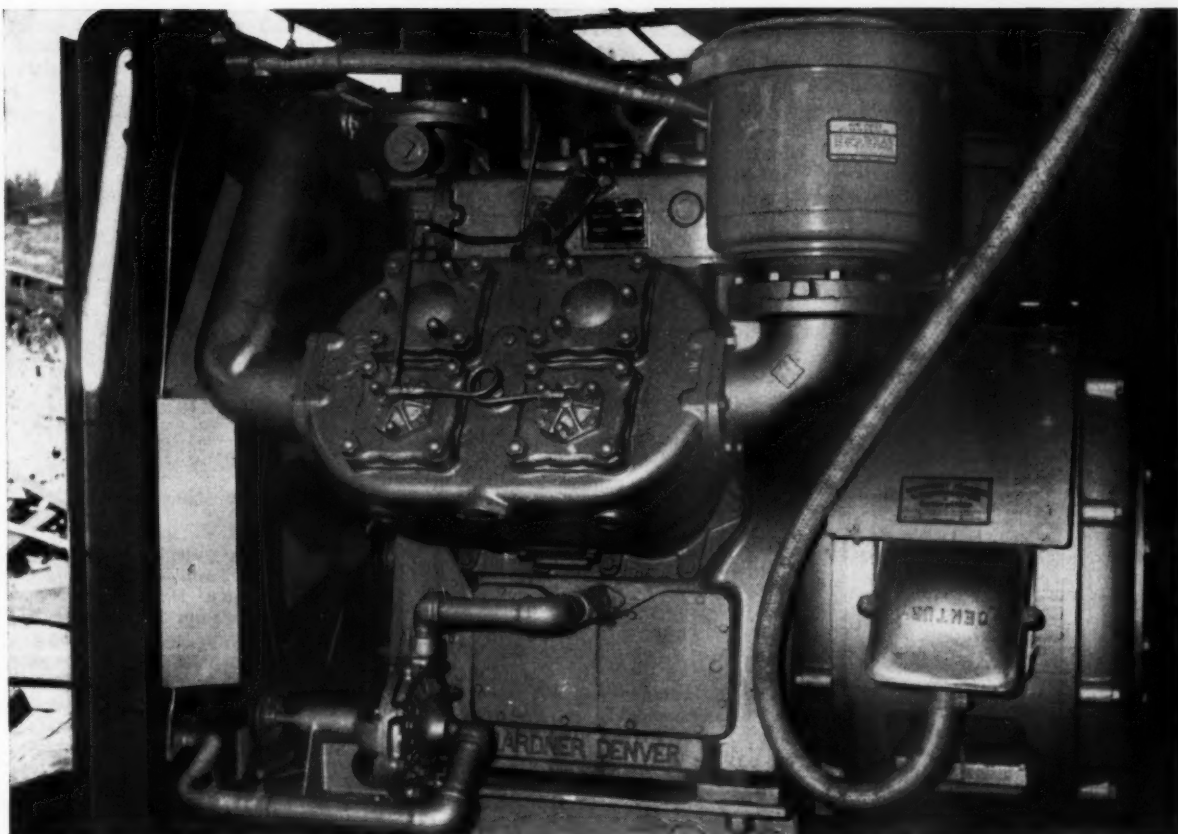


Railroads are finding that it pays to give their M/W and bridge and building workers—"a home away from home" on jobs where it is inconvenient or impossible to get back to the home base.

Modern, custom-built trailers are ideal for this purpose. INTERNATIONAL has a complete line of kitchen-diner, bunk and office trailers—all built to a basic design which can be varied to suit individual needs. These sturdy, comfortable trailers are fabricated with aluminum sidewalls and are fibre glass insulated throughout. Write for typical plans and complete information.

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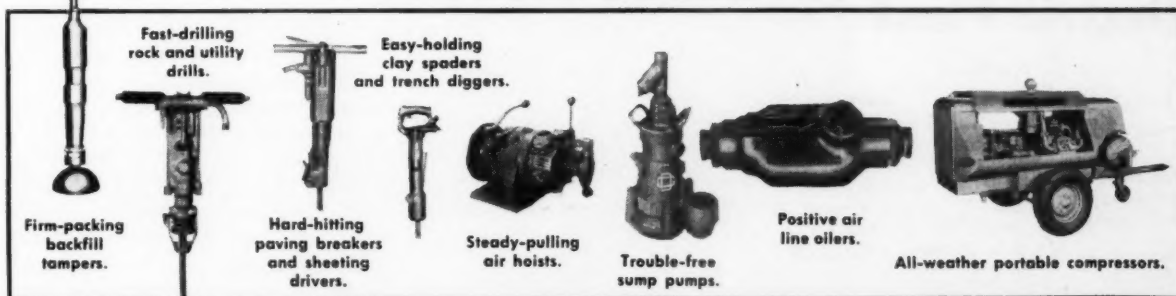
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A WB compressor—compact, efficient, space-saving. Capacities from 142 c.f.m. to 686 c.f.m.

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Air tools to do the work—easy to use—simple to maintain.



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FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

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## Railway Personnel (Cont'd)

**George Babcock**, who has been promoted to general track supervisor on the Chesapeake & Ohio at Plymouth, Mich. (RT&S, February, p. 72), was born at West Olive, Mich., on March 30, 1907. He began his railroad service with the



**George Babcock**

Pere Marquette as a trackman in June 1923. After serving as relief track foreman, he was promoted to track foreman in August 1935, and in August 1936, was appointed track supervisor, which position he held until his recent promotion.

## Bridge and Building

**A. R. Dunlop, Jr.**, junior engineer on the Maryland division of the Pennsylvania, has been named assistant supervisor of structures on the Atlantic division at Camden, N. J., succeeding **J. D. Woodward**, who has been promoted to supervisor of structures at that point. Mr. Woodward succeeds **J. A. Campbell**, who has been transferred to the New York division at New York, succeeding **F. D. Day**, whose promotion to assistant engineer is noted elsewhere in these columns.

**Robert H. Patterson**, who has been promoted to bridge and building supervisor on the St. Louis Southwestern at Pine Bluff, Ark. (RT&S, February, p. 68), was born at Rosiclare, Ill., October 2, 1920. He attended Indiana Technical College where he received a BS degree in civil engineering in 1942, joining the Cotton Belt as a chainman in March 1942. He was advanced to rodman in October 1942 and served in that capacity until December of that year when he entered military service with the U. S. Navy. Following his discharge in January 1946, he returned to the Cotton Belt as junior transitman, advancing to transitman in 1947. He was promoted to senior transitman in 1950, and was named assistant B&B supervisor in 1953.

**J. R. Kenyon**, bridge and building supervisor on the New Haven at New Haven, Conn., has been promoted to

general B&B supervisor at that same point. Mr. Kenyon began his railroad service with the New Haven as a clerk



**J. R. Kenyon**

at Providence, R. I., in May 1920. In 1938 he became assistant to B&B supervisor, and in 1942 was advanced to general B&B foreman. He served in the military service from April 1944 to November 1946, and upon his return was appointed assistant B&B supervisor. He was advanced to B&B supervisor in 1952.

## Water Service

**H. E. Graham**, assistant superintendent water service on the Illinois Central, has been promoted to superintendent water service at Chicago, succeeding **G. E. Martin**, whose death is noted elsewhere in these columns.

## Special

**George B. MacGregor**, scale inspector on the Delaware & Hudson, has retired after 41 years of service.

## Obituary

**Charles T. Jackson**, retired chief engineer of the Milwaukee, died February 4 at Columbia, Mo.

**C. D. Turley**, engineer—ties and treatment on the Illinois Central at Chicago, died January 27, after a brief illness, at the age of 69. Mr. Turley, a graduate of Purdue University, began his service with the IC in June 1911 as a masonry inspector.

**G. E. Martin**, superintendent water service on the Illinois Central at Chicago, died January 13 after an illness of about six months. Mr. Martin was born December 9, 1898, and began service with the IC in March 1921 as a water works helper.

**George A. Belden**, assistant chief engineer on the Central of Georgia at Savannah, Ga., died January 9 at the age of 66.

A native of Upper Montclair, N. J., Mr. Belden was graduated from Cornell University and worked for the Erie from 1907 until joining the C of G as a draftsman in 1912. He was promoted to assistant engineer in 1914, to architect in

# NEW Powerhouse on wheels!

## Trailer-mounted ONAN "CW" Electric Plant

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1917 and to engineer of bridges and buildings in 1937. Mr. Belden was advanced to assistant chief engineer in January 1950.

## Association News

### Maintenance of Way Club of Chicago

At the March meeting, which will be held at the Hamilton Hotel, Chicago, on the 28th, the principal speaker will be W. E. Cornell, engineer of track, Nickel Plate. His subject will be "Safety in Maintenance of Way Work."

### Northwest Maintenance of Way Club

The March meeting of the club will be held on the 24th at the Midway Civic Club, 1931 University avenue, St. Paul. Clayt James of the General Signal Company will speak on "Centralized Traffic Control." B. F. McGowan, superintendent of signals of the Soo Line, will act as moderator.

### Wood Preservers' Association

The annual convention of the AWPAA will be held at the Hotel Jefferson, St. Louis, Mo., on April 13-15. The president's reception will be held on Tuesday evening, April 12. As usual, many of the committee reports and addresses will deal with subjects of direct or indirect inter-

est to railroad users of various types of treated wood.

Of prime interest in this connection will be an address by Clarence S. Burt, assistant to vice-president, purchases and stores, Illinois Central, whose subject will be the "Place of Treated Wood in the Economy of the Illinois Central, and Possible Future Trends."

### Organizations

**American Railway Bridge and Building Association**—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5. Next annual meeting, September 19-21, 1955.

**American Railway Engineering Association**—Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5. Next annual meeting, March 15, 16 and 17, 1955.

**American Wood-Preservers' Association**—W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

**Bridge and Building Supply Association**—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

**Maintenance of Way Club of Chicago**—E. C. Patterson, secretary-treasurer, Room 1512, 400 W. Madison street, Chicago 6. Next meeting March 28, Hamilton Hotel.

**Metropolitan Maintenance of Way Club**—Secretary, 30 Church street, New York. Next

meeting March 3, Railroad-Machinery Club, 30 Church street, New York.

**Mississippi Valley Maintenance of Way Club**—P. E. Odom, Secretary-Treasurer, Room 1008, Frisco Building, 906 Olive street, St. Louis 1, Mo.

**National Railway Appliances Association**—J. B. Templeton, Secretary, Gardner Road, Broadview, Ill.; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

**Northwest Maintenance of Way Club**—L. C. Blanchard, secretary-treasurer, Room 27, Milwaukee Depot, Minneapolis 1, Minn.

**Railway Tie Association**—Roy M. Edmonds, Secretary-Treasurer, 1221 Locust street, St. Louis 3, Mo. Next annual meeting, October 26-28, Peabody Hotel, Memphis, Tenn.

**Roadmasters' and Maintenance of Way Association of America**—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5. Next annual meeting, September 19-21, 1955.

**Track Supply Association**—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

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Above, left: TELEWELD Anchor Shim in position with Fair anchor ready for driving. Right: Anchor is driven back onto rail with TELEWELD Anchor Shim making tight fit.

Below: TELEWELD Anchor Shim in position with Ericson anchor before (left) and after (right) driving for a tight fit to rail.



WEAR SHIMS or ADAPTER SHIMS  
to fit all types of  
rail anchors.



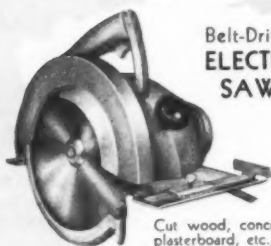
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## Supply Trade News

### General

The **Gardner-Denver Company** and the **Keller Tool Company** have announced a consolidation of their firms. The Keller Company now becomes the Keller Tool Division of Gardner-Denver and will continue operations under the former Keller management. **E. V. Erickson**, formerly president of the Keller Company, has been elected executive vice president of Gardner-Denver.

### Personal

**C. K. Scott**, retired engineer maintenance of way on the Erie, has joined the **L. B. Foster Company** with headquarters at New York City.

**William S. Stephens**, formerly district construction engineer for the Pennsylvania Department of Highways, has been appointed application engineer in the Materials Handling Department of the **Syntron Company**, at Homer City, Pa.

Four special railroad representatives, who will cover the application of Caterpillar products to the industry on a broad basis, have been announced by the **Caterpillar Tractor Company**. This will be the

first time that Caterpillar has had special representatives assigned to specific sections of the country. The new assignments and the territories which they will cover are as follows:

**John Daniels**—New England states, New York, Pennsylvania, Maryland, Delaware and the Canadian railroads, Toronto and east.

**Lyle E. Hill**—Kentucky, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee and the District of Columbia.

**Norman M. Nelson**—Nebraska, Kansas, Colorado, Missouri, southern Illinois, Arkansas, Louisiana and Texas.

**Joe M. Giles**—Ohio, Michigan, Indiana, Wisconsin, Iowa, Minnesota, North Dakota, South Dakota, the Chicago area and Canadian railroads west of Toronto.

Mr. Nelson and Mr. Giles will cover jointly the territory west of Denver. Mr. Giles will give leadership to the entire group.

**Arthur W. Knight** has been named Pacific Coast merchandise manager for the Industrial Products Division of **Johns-Manville**, following the enlargement of that company's merchandising organization at San Francisco. **Johan H. Peterson** continues as Pacific Coast staff manager for J-M Transite pipe products. **Lawrence M. Osborn** has been promoted to Pacific Coast staff manager for industrial products (other than Transite pipe), and **H. C. Bruner** becomes Pacific Coast staff engineer for the division.



**John Daniels**



**Lyle E. Hill**



**Norman M. Nelson**



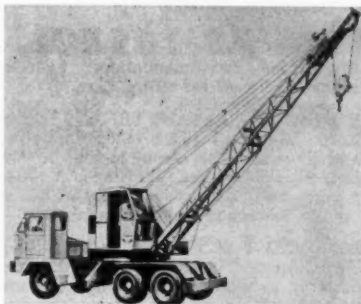
**Joe M. Giles**

RAILWAY TRACK and STRUCTURES



## Products of Manufacturers . . .

(Continued from page 87)



### TRUCK CRANE

SCHIELD BANTAM Company, Waverly, Iowa, has announced improvements in its heavy-duty truck-mounted Model T-35 Bantam truck crane. This unit is said to be mountable on any of the company's complete line of carriers. It is also reported that the crane has an over-the-road speed of 40 mph, a 12,000-lb lifting capacity and a 6-rpm swing speed. The announcement states that any of nine attachments may be used interchangeably to convert the equipment from a crane to a clamshell, trench hoe, shovel, grapple, pile driver, magnet or backfill blader.

A power boom hoist has been supplied to permit accurate boom spotting, as well as a jackshaft-mounted tag line which can be used as an ordinary tag line or for a power-operated shovel-dipper trip according to the announcement. The machine is equipped with anti-friction bearings, machine-cut gears and internal expanding band-type clutches.

### HORSEPOWER INCREASED

THE CATERPILLAR Tractor Company, Peoria, Ill., has announced that increased drawbar horsepower and faster engine speeds with a corresponding increase in travel speeds have been incorporated in three models of Caterpillar tractors as follows:

D6—drawbar horsepower increased from 66 to 75 and rpm from 1400 to 1600.

D4—drawbar horsepower increased from 43 to 48 and rpm from 1400 to 1600.

D2—drawbar horsepower increased from 35 to 38 and rpm from 1525 to 1650.

RAILWAY TRACK and STRUCTURES



### COMBINATION WELDER

A UNIVERSAL combination arc-welder which provides a choice of either AC or DC welding current has been announced by the Lincoln Electric Company, Cleveland, Ohio. The new machine, called the Idealarc, is said to provide the right type of welding arc for every type of manual welding application, permitting selection of either a soft or forceful arc.

The machine is available in several combinations: it can be obtained as an ac welder without the dc current, which unit can be fitted with a dc package in a very short time at some later date. A combination ac and dc machine is also available with selection of either current possible through the twist of a switch handle. Various output capacities of dc and ac can be combined to fit the machine to the job requirements.

For ac welding jobs the machine provides a single-phase transformer-type welder, with control of both voltage and amperage. In addition to the dual-control of the arc, the machine has an arc-booster switch for selecting normal or "hot" starting.

For dc welding the Idealarc provides currents through heavy-duty rectifiers. Dual-control is also provided for the dc operation, as is the arc booster. Current models available are 300, 400 and 500 amperes ac combined with dc capacities of 200, 300, 375 and 450 amperes.

## SYNTRON DIESEL PILE HAMMERS

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Require No Boiler, Hose,  
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Easily attached to swinging leads  
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Quick conversion  
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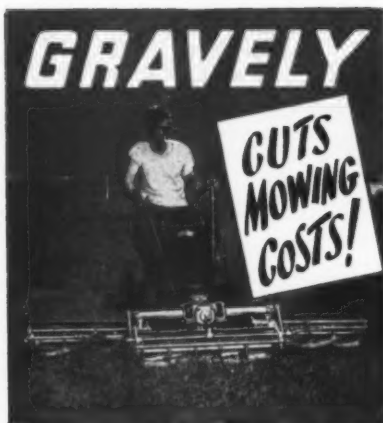
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5-HP—more than twice the power of the usual power mower... all-gear drive, two speeds forward and REVERSE... 21 tools available!

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## Manufacturers' Literature

Following is a compilation of free literature, pamphlets and data sheets offered by manufacturers to the railroad industry. Circle the number (s) on the coupon below to receive the desired information; the requests will be sent direct by the manufacturers.

1. **GRINDING WHEEL.** Colonial Abrasive Products Co. 4-page bulletin "Colonial Grindaway Wheels"... an "Increased Safety Factor" describes, illustrates and gives a price list of Colonial high speed resinoid portable grinding wheels and cups with safety rings.

2. **TRACTOR SHOVEL.** The Frank G. Hough Co. 4-page 2-color folder (271) describes, illustrates and gives specifications for the Model HAHG Payloader with torque converter; shows with photos and drawings main features.

3. **GLASS BLOCKS.** Pittsburgh Corning Corp. 8-page booklet (GB-103) "Suntrol Glass Block for Reduction of Glare and Heat" shows in detail the physical performance of this new glass block, illustrating the Suntrol principle (a pale green diffusing screen that helps reduce intensity of glare and heat).

4. **TIMBER TRUSS SOURCES.** Timber Engineering Co. Sources from which may be obtained your needs in wood roof trusses are included in a roster of timber fabricators shown in new 1955 edition of "Teco Products and Services Catalog"; booklet also includes specifications for each type of connector to assist architects and engineers in preparing for light and heavy wood structures.

5. **AIR REDUCTION STORY.** Air Reduction Co., Inc. 36-page profusely illustrated booklet "Facts About Air Reduction" describes in easy-to-read style the products and services of the various divisions; includes a history of the company, the process of reducing air, distribution facilities, and an organization chart.

6. **JACKS AND PULLERS.** Templeton, Kenly & Co. Bulletin (RR55) describes and illustrates the Simplex line of mechanical and hydraulic jacks and pullers, including trailer jacks and hold-down units for piggyback operations.

7. **V-DRIVES.** Worthington Corp. 100-page Master Engineering Manual on Multi-V-Drives With QD Sheaves (V-1400-E2F) presents a scientific and simplified method for rating V-belts; each popular 60 cycle motor speed with complete drive selections shown on separate page.

8. **ABRASIVES.** The Carborundum Co. 42-page pocket-size booklet (14) "Abrasive Grain and Powders," with informative charts and illustrations, contains

many of Carborundum's latest abrasive engineering recommendations; includes suggested layout for set-up room.

9. **GRATING & STAIR TREADS.** Dravo Corp. 16-page booklet (1105) describes and illustrates the complete line of Tri-Lok Interlocked and Tri-Forges Welded grating and stair treads, includes tables of safe loads and application photos.

10. **SOCKET SCREWS.** The Bristol Co. Two 20-page 2-color bulletins outline the features, manufacturing methods and applications of the full line of socket screws, including tables of nominal sizes, basic dimensions, tolerances, and engineering data.

11. **SOLENOID VALVES.** J. D. Gould Co. Bulletin (F-1) describes and illustrates the new direct lift solenoid valves (Type F Brass and Type G stainless steel), with renewable metal seats.

12. **ELECTRIC TOOLS.** Porter-Cable Machine Co. 25-page catalog (101) describes 52 portable electric tools and kits with over 400 accessories, includes 150 photos of tools and their uses with specifications and prices.

13. **CRANE-EXCAVATOR.** Bucyrus-Erie Co. 12-page bulletin (15-B-TC-1) describes and illustrates the Bucyrus-Erie 15-B Transit Crane (15-ton rated capacity) with job application photos and close-ups of mechanical features; includes specifications and working ranges.

14. **WEED CONTROLLER.** Socony-Vacuum Oil Co., Inc. Technical Service Laboratory Report (54-14-S) "Progress Report on The Use of S/V Agronol R For Weed Control on Railroad Rights-of-Way" summarizes correct application of herbicidal oil for weed control.

15. **WROUGHT IRON PIPE.** A. M. Byers Co. 52-page plastic spiral bound catalog on wrought iron pipe and tubular products contains charts and tables, data on characteristics, section on physical properties, detailed instructions on how to specify and proper ordering methods, complete tables on every type with detailed data on sizes, dimensions, weights, mill test pressures.

16. **TROWEL CATALOG.** Goldblatt Tool Co. 100-page 1955 70th Anniversary Goldblatt tool encyclopedia-catalog lists more than 1000 tools in 200 different classifications.

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MARCH, 1955

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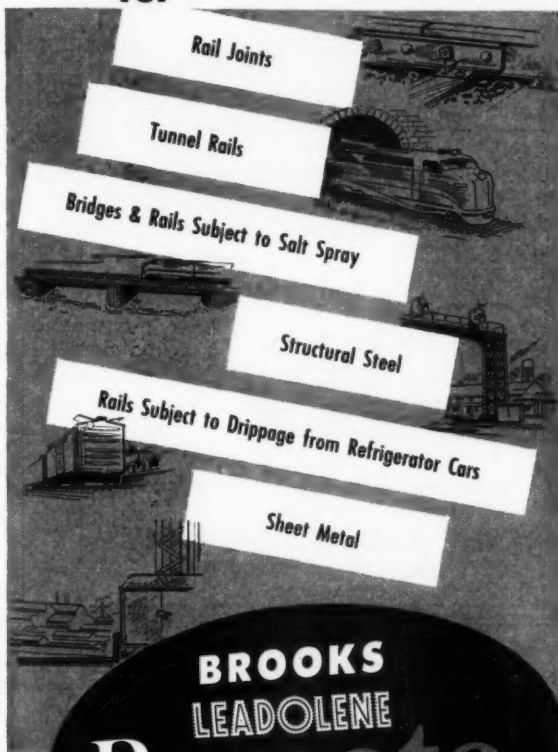
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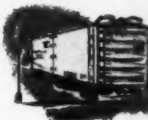
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The Osmose spot-maintenance treatment for in-service wood. It penetrates!

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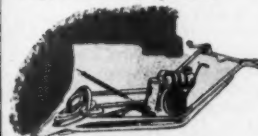


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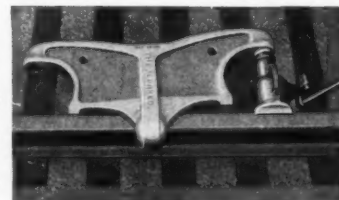
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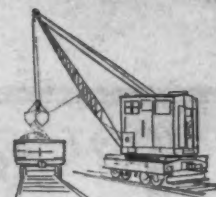
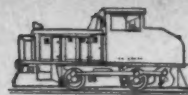
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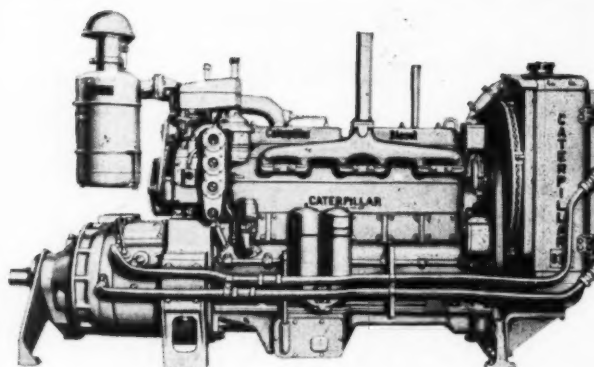
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